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Copies of this Catalog are available for examination in Iowa high schools, offices of the county superintendents of schools, public libraries, and justice and community colleges; at the major state government offices in Des Moines; and in each office of the University. Copies may be requested from the bookstore at the Iowa Memorial Union at a cost of $3. Reprints of individual sections of the Catalog are available without charge.

This 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 the Catalog is prepared. However, information concerning regulations, policies, fees, credits, courses, and other matters contained in this Catalog is subject to change at any time during the period for which the Catalog is in effect.

Current information regarding fees, important dates, and the availability of courses can be found in the Schedule of Courses, which is available before each term begins. The brochure The Iowa Bachelor and The Iowa Graduate Experience also include information on admissions, fees, scholarships, student financial aid, housing, and student personnel services.

The University of Iowa does not discriminate in its educational programs and activities on the basis of race, national origin, color, religion, sex, age, or handicap. The University also affirms its commitment to providing equal opportunities and equal access to University facilities without reference to affectional or associational preference. For additional information on nondiscrimination policies, contact the Coordinator of Title IV and Section 504 in the Office of Affirmative Action, telephone 319/335-6614, 250 Jessup Hall, The University of Iowa, Iowa City, Iowa 52242.
University Calendar

Fall Semester 1986
- Registration begins: August 25
- Classes begin: August 27
- University Holiday: September 1
- Homecoming: October 11
- Thanksgiving recess begins: November 25
- University Holidays: November 27-28
- Classes resume: December 1
- Classes end: December 12
- Examination week: December 15-19
- Commencement: December 20
- University holidays: December 25-26

Spring Semester 1987
- University holiday: January 1
- Registration begins: January 15
- Classes begin: January 19
- Foundation Day: February 25
- Spring vacation begins: March 20
- Classes resume: March 30
- Classes end: May 8
- Examination week: May 11-15
- Commencement: May 16
- University holiday: May 25

Summer Session 1987
- Registration: June 8
- Classes begin: June 9
- University Holiday: July 3
- Classes end: July 31
- Commencement: July 31
- Independent Study Une for law and graduate students: August 3-21

Fall Semester 1987
- Registration begins: August 24
- Classes begin: August 26
- University Holiday: September 7
- Homecoming: October 24
- Thanksgiving recess begins: November 24
- University Holidays: November 26-27
- Classes resume: November 29
- Classes end: December 11
- Examination week: December 14-16
- Commencement: December 19
- University holidays: December 26-28

Spring Semester 1988
- University holiday: January 1
- Registration begins: January 14
- Classes begin: January 18
- Foundation Day: February 25
- Spring vacation begins: March 18
- Classes resume: March 28
- Classes end: May 6
- Examination week: May 9-13
- Commencement: May 14
- University holiday: May 30

Summer Session 1988
- Registration: June 6
- Classes begin: June 7
- University Holiday: July 4
- Classes end: July 29
- Commencement: July 29
- Independent Study Une for law and graduate students: August 1-19
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The University of Iowa is a leader in American higher education. Recognized for its historic excellence, the University has won international recognition for its wealth of academic activity in the arts, sciences, and humanities. Founded in 1847 as Iowa's first public institution of higher education, the University has become a major intellectual and cultural center for the state of Iowa, bringing together undergraduate, graduate, and professional students from all parts of the United States and the world. The University's College of Liberal Arts and Sciences is a diverse and distinguished community of scholars who are committed to excellence in teaching and research. Among its many achievements the University is noted for:

- International leadership in creative writing
- Establishment of the first law school west of the Mississippi
- Development of and contributions to educational television
- Broadcast of the world's first educational television programs
- Operation of the nation's largest university-owned teaching hospital
- Numerous honors for its theatre arts and communication programs
- World-renowned research in hydraulics engineering
- All-terrain vehicle research with University-designed research instruments used in major regions since the 1950s
- Operation of the nation's largest dental research facility supported by private funds.

Liberal Arts: The Heart of Learning at Iowa

Undergraduate education leading to the bachelor's degree is at the heart of the University's operations. The undergraduate program prepares students both for careers and for advanced study.

Liberal arts education is the core of learning at the University of Iowa. Not only does the College of Liberal Arts have the oldest and largest enrollment among the University's ten colleges, it also is the entering point for most students, including those who later transfer into one of the other professional colleges. A program of study in the liberal arts is considered "education for life" at the University.

Professional education is provided through the colleges of Business Administration, Dentistry, Engineering, Education, Law, Medicine, Nursing, and Pharmacy. With its strong emphasis on interdisciplinary studies, the University enjoys an appropriate balance between undergraduate and graduate education. The baccalaureate programs provide a solid base for the development of high quality master's and doctoral programs in many fields. The Graduate College provides leadership in the development, review, and oversight of graduate programs.

Award-Winning Teaching and Scholarship

The University of Iowa has a diverse and distinguished faculty that is widely recognized for its outstanding accomplishments in teaching and scholarship. Faculty members have won many awards, including Guggenheim Fellowships, senior fellowships from the National Endowment for the Humanities, and senior Fulbright Awards.

Faculty bringing outstanding backgrounds in research and education to their teaching assignments, thus enhancing learning for their students. The faculty have helped to produce well-rounded students who have become Rhodes Scholars and Pulitzer Prize winners, and leaders in business, the arts, the sciences, and education.

The University of Iowa reaches out to all segments of society. While a small student body, the University has high achievement, which is not an exclusive institution. The University has enrolled among the nation's top 25 universities.

Enrollment from the black population of the year 1960 totaled 20,951 students. That year the University served 63.6 percent of its students from Iowa, 18.2 percent from other states and 8.4 percent from foreign countries.

A member of the select Association of American Universities, an organization of institutions that are recognized for excellence in research, The University of Iowa maintains a balance between scholarly research and teaching. There are some 45 centers and institutes, as well as major library resources, which faculty and staff pursue research projects in a wide range of disciplines.

A Wealth of Cultural Programs and Services

The University presents a wealth of cultural programs for the Iowa City community and surrounding areas through the Iowa Center for the Arts. The center provides the staging and setting for professional-caliber theatre, dance, and musical performances by students and faculty as well as by visiting artists from around the world. The University's Museum of Art displays its outstanding permanent collections, works by faculty and students, and traveling exhibits year around. Joining with the performing and visual arts, the world-renowned Writers' Workshop and International Writing Program make the University and Iowa City one of the nation's most prominent arts communities.

As the nation's largest university-owned teaching hospital, The University of Iowa Hospitals and Clinics serve 460,000 persons from Iowa and other states every year. Specialized care is provided by more than 1,000 physicians and other health professionals, including registered nurses, and 4,000 staff and professional support. In athletics, the Iowa Hawkeyes enjoy national recognition and continue to bring Iowa fans to every Iowa home game. Iowa fans often intercollegiate sports for women and men.

The University is located on 900 acres of rolling land along the Iowa River. Ninety major structures dot the campus, most within walking distance from each other and all fully accessible to the handicapped. Overlooking the river is Old Capital, the central landmark of the campus. Built in Greek Revival style during the early 1840s, Old Capital served as the last capital building for Iowa territorial government from 1842 until 1846, and then housed the legislature and government offices for the state of Iowa until 1867, when the state government was moved to Des Moines.

A historical attraction in the central part of the campus is the Natural History Museum in MacBRide Hall that once housed the museum of science from Iowa's four billion years of natural history. In addition to the Iowa City campus, there are University research and field study facilities at the Des Moines and Garyville, at the University of Iowa Hospital in Iowa City, north of Iowa City, and at the Lakeview Laboratory School in West Des Moines in the northeast corner of the state.

Iowa City

A forward-looking community provides a special setting for The University of Iowa. The renaissance city of Iowa City will be the University's uniquely cohesive, cooperative, and supportive faculty and staff with a stable of faculty, business, and professionals outside the University's responsibilities of community and government services. Nearby natural resources that work together to create an environment for growth in teaching and research. Iowa City is accessible by car from the Cedar Rapids-Iowa City airport, by major bus lines, and by car from major highways.

WHAT IOWA IS ALL ABOUT
Academic Programs

The University of Iowa is one of Iowa's three state universities. With Iowa State University and the University of Northern Iowa, it is governed by the State Board of Regents.

The College of Liberal Arts is the core of the University. Unlike many schools and more than 50 departments and programs. It is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College. All ten colleges are located on the Iowa City campus.

The University includes some 1,800 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. Some faculty members from the University's professional colleges also teach undergraduate classes in the College of Liberal Arts, including a number of interdisciplinary courses.

The University's undergraduate enrollment is about evenly divided between men and women students. Approximately three out of four undergraduates are Iowa residents.

About 75 percent of the University's entering freshmen had a B average or above in high school. Approximately 86 percent of the freshmen from the University's high school classes and about 24 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. Most full-time students have some form of employment; one-third have earned student-aid. A student club and one of the finest tournaments is financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward lifelong learning, the University in recent years has expanded educational programs substantially, both on campus and off campus for individuals who cannot enroll as regular full-time students. These learning opportunities include extension courses, workshops, continuing education programs for professionals, Saturday and evening classes offered on campus, and credit courses taught off campus. In 1977 the University, in cooperation with Iowa's other two state universities, introduced a new degree of Bachelor of Liberal (B.L.) in a degree program designed for adults who want to earn a college degree, but are unable to enroll in traditional on-campus study.

Degrees Offered

The University offers the following degrees. The major fields are listed in the various college sections of the Catalog.

Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of Fine Arts, Bachelor of General Studies, Bachelor of Liberal Studies, Bachelor of Business Administration, Bachelor of Science in Engineering, Bachelor of Science in Nursing, Bachelor of Science in Social Work, Doctor of Dental Surgery, Juris Doctor, Master of Science in Education, Master of Arts in Teaching, Education Specialist, Doctor of Medicine, Master of Science in Education, Master of Arts in Teaching, Education Specialist, Doctor of Medicine, Master of Science in Education, Master of Arts in Teaching, Education Specialist, Doctor of Veterinary Medicine, Master of Business Administration, Master of Fine Arts, Master of Science in Business Administration.

Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools since the association's organization in 1913. The University is a member of the Association of American Universities. It is associated with Northwestern, Indiana, Purdue, Ohio State, and Michigan State universities, and the universities of Illinois, Minnesota, Wisconsin, and Michigan in the Western (Big Ten) Conference. It is associated with three universities and The University of Chicago in the Committee for Institutional Cooperation (CIC) of the Council of the University of California. Various colleges and schools of the University are members of associations associated in their respective fields, as follows:

Colleges

Business Administration—American Association of Collegiate Schools of Business

Dentistry—American Dental Association, Council on Dental Education

Education—National Council for Accreditation of Teacher Education

Law—American Bar Association, Association of American Law Schools

Medicine—Liaison Committee on Medical Education, representing the American Medical Association (AMA) and the Association of American Medical Colleges (AAMC)

Nursing—National League for Nursing, Iowa Board of Nursing

Pharmacy—American Council on Pharmaceutical Education

Schools

Business Administration, School of Business Administration, School of Graduate Studies, School of Journalism and Mass Communication, School of Law, School of Library and Information Science, School of Medicine and Dentistry, School of Music, School of Nursing, School of Social Work, School of Veterinary Medicine.

Departments and Programs

Chemical and Materials, Civil and Environmental, Electrical and Computer, Industrial and Management, and Mechanical Engineering—Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Chemistry—American Chemical Society

Dental Hygiene—American Dental Association, Commission on Dental Accreditation

Dietetics—American Dietetic Association

Economics—American Economic Association, Council for Social Science Education

Health Administration—Accrediting Commission on Education for Health Service Administration

Medical Technology—Committee on Allied Health Education and Accreditation of the American Medical Association

Physical Therapy—American Physical Therapy Association

Nuclear Medicine Technology—Committee on Allied Health Education and Accreditation of the American Medical Association

Psychology—American Psychological Association

Speech Pathology and Audiology—Educational Standards Board of the American Speech-Language-Hearing Association
Academic Sessions
The University's academic year consists of two semesters of approximately 16 weeks each. The University also conducts an eight-week summer session and, following that, an Independent Study Unit of from one to three additional weeks for students in the Graduate College and the College of Law.

Academic Recognition
The University recognizes high scholastic achievement by awarding degrees "with distinction," "with high distinction," and "with highest distinction," based on three criteria:

All undergraduate colleges except Pharmacy
Highest distinction—highest 2 percent
High distinction—next highest 5 percent
Distinction—next highest 10 percent

Pharmacy
Highest distinction—grade-point average of 3.75 and above
High distinction—grade-point average of 3.50 to 3.74
Distinction—grade-point average of 3.35 to 3.49

Dean's List
Liberal arts students who achieve grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work and who have no hours of I or I grades are recognized by inclusion on the Dean's List for that semester.

President's List
Undergraduate students who achieve a grade-point average of 4.0 for two consecutive semesters on 12 or more semester hours of graded work and who have no hours of I or I grades are recognized by inclusion on the President's List.

Undergraduate Scholar Assistant Program
For students who rank in the top one percent at the University, the Undergraduate Scholar Assistant Program provides undergraduate, including freshmen, with a chance to do scholarly work with faculty members from all areas of the University on projects that range from art to Spanish, from music to medicine.

Depending on their interests and fields of study, undergraduate assistants might help in classrooms, do research in libraries, work in the field, perform laboratory experiments, gather social science data, program computers, edit manuscripts, or analyze data in physics.

The biggest reward from this ten-hour-a-week appointment is the working relationship students form with faculty members and the involvement they have in important teaching and research activities. As long as they maintain superior performance, assistants may be invited to continue their work throughout their college careers, allowing them to increase the breadth and depth of their scholarly work and to cement the mentor relationship with their faculty member.

Honorary and Professional Societies
Psi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among the national honorary and professional societies that have active chapters on The University of Iowa campus.

University Marking System
Mark and Grade Point/Semester
A (4) superior average
B (3) above average
C (2) average
D (1) below average but passing
F failing
H* honors
I* incomplete
M* makeup
O* no grade
P* passing
R* audit
S* satisfactory
U* unsatisfactory (Graduate College only)
W* withdrawn

*Not used in computing grade-point averages

The College of Law uses a numeric grading system.

Numbering of Courses
Each course in the regular University curriculum has an identifying number prefixed by the number of the college, department, or program that administers the course. For example, "2-101" is the code for the course numbered 1 in the Department of Biology (12), entitled "Introduction to Botany." Course numbers below 100 designate courses primarily for undergraduates; numbers 100 to 99 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates.

College of Business Administration
6A Accounting
6E Economics
6F Finance
6K Management Sciences
6L Industrial Relations and Human Resources
6M

College of Dentistry
81 Fixed Prosthodontics
82 Operative Dentistry
83 Endodontics
84 Removable Prosthodontics
86 Oral Pathology and Diagnosis
87 Oral and Maxillofacial Surgery
88 Dental Hygiene
89 Orthodontics
90 Pediatric Dentistry
92 Periodontics
111 Preventive and Community Dentistry
112 Dentistry Nondepartmental
114 Family Dentistry

College of Education
7C Counselor Education
7D Educational Administration
7E Early Childhood and Elementary Education
7F and 7H Foundations, Postsecondary and Continuing Education
7P and 7Q Psychological and Quantitative Foundations
7S Secondary Education
7U Special Education
7X Education Interdivisional

College of Engineering
51 Biomedical Engineering
52 Chemical and Materials Engineering
53 Civil and Environmental Engineering
55 Electrical and Computer Engineering
56 Industrial and Management Engineering
57 Engineering Core
58 Mechanical Engineering

81 College of Law

College of Liberal Arts
0 Nondepartmental Courses
80S Bachelor of General Studies Courses
L Lakeside Laboratory
1A Fundamentals
1B Elements of Art
1C Ceramics
1D Design
1E Art Education
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<th>Major</th>
<th>Code</th>
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<td>Political Science</td>
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<tr>
<td>Psychology</td>
<td>31</td>
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<tr>
<td>Religion</td>
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<tr>
<td>Literature, Science, and the Arts</td>
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<tr>
<td>Sociology</td>
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<tr>
<td>Spanish</td>
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<tr>
<td>Communication Studies</td>
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<tr>
<td>Broadcasting and Film</td>
<td>36B</td>
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<tr>
<td>Communication</td>
<td>36C</td>
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<tr>
<td>Rheotric Studies</td>
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<td>Asian Languages and Literature</td>
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<td>Japanese</td>
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<td>Social Work</td>
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<td>Geography</td>
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<td>Global Studies</td>
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<td>Science Education</td>
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<td>Social Studies</td>
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<td>Recreation Education</td>
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<td>Anthropology</td>
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<td>African-American World Studies</td>
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<td>Latin American Studies</td>
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<td>Spanish Students</td>
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**College of Medicine**

<table>
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<tr>
<th>Major</th>
<th>Code</th>
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<tbody>
<tr>
<td>Medicine Nondpartmental</td>
<td>50</td>
</tr>
<tr>
<td>Anatomy</td>
<td>60</td>
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<tr>
<td>Microbiology</td>
<td>61</td>
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<td>Dermatology</td>
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<td>Preventive Medicine and Environmental Health</td>
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<td>Neurology</td>
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<td>Human Nutrition</td>
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<td>Obstetrics and Gynecology</td>
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<td>Ophthalmology</td>
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<td>Otolaryngology—Head and Neck Surgery</td>
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<td>Pathology</td>
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<td>Pediatrics</td>
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<td>Pharmacology</td>
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<td>Physiology and Biophysics</td>
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<td>Psychiatry</td>
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<td>Radiology</td>
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<td>Surgery</td>
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<td>Orthopedic Surgery</td>
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<td>Radiation Biology</td>
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<td>Internal Medicine</td>
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<tr>
<td>Urology</td>
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<tr>
<td>Hospital and Health Administration</td>
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<tr>
<td>Biochemistry</td>
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<tr>
<td>Physical Therapy</td>
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<tr>
<td>Family Practice</td>
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<td>Anesthesiology</td>
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<tr>
<td>Neuroscience</td>
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**Admissions**

**Applying for Admission**

Prospective students interested in enrolling in any of the ten colleges of the University of Iowa should contact the Office of Admissions, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242, to request application forms and application instructions for both admission and University housing. All applicants must submit formal applications, official transcripts, and other required supporting material to the Office of Admissions. For specific admission standards of the respective colleges, please refer to the appropriate college sections of the catalog.

**ACT and SAT Scores**

All entering freshmen and undergraduate transfer students are required to complete the American College Test (ACT) and have their scores reported to the University before they are accepted. The scores from these exams are used as a criterion for admission, for academic advising, and course placement, and for awarding University-administered scholarships and loans.

**Application Fee**

A fee is required to accompany applications submitted by prospective students not previously enrolled for full-time study at the University. Graduate
College applicants must pay the fee unless they have earned a degree from The University of Iowa. Application fees are not refundable. All applicants are expected to enroll in their respective Iowa residents who are denied admission.

**Application Deadlines**

Entering freshmen are urged to apply early in the fall of their senior year to arrange for University housing and other financial aid. Entering transfer students and graduate students are encouraged to apply well in advance of the session in which they plan to enroll. All application materials are due in the Office of Admissions by the deadlines listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" section).

- **College of Liberal Arts**—Ten days before classes begin—All sessions.
- **College of Business Administration**—May 1 for summer session; May 1 for fall semester, December 1 for spring semester.
- **College of Dentistry**—November 28, fall semester only; preliminary applications must be submitted to the American Association of Dental Schools Application Service by this date.
- **College of Engineering**—Ten days before classes begin—All sessions; early application is advised since enrollment may reach capacity far in advance of the beginning of classes.

**Graduate College**—General Graduate College deadlines: May 1 for the summer session, July 15 for the fall semester, and December 1 for the spring semester. Departments may have earlier deadlines, so early submission of materials is advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.

- **College of Law**—March 1, summer or fall semester.
- **College of Medicine**—December 1 for fall semester only; Early Decision Plan, August 1 for the following year; preliminary applications must be submitted to the American Medical College Application Service by these dates.
- **College of Nursing**—May 1 for fall semester, December 1 for spring semester.
- **College of Pharmacy**—March 1, fall semester only.

**Undergraduate Programs**—March 1, fall semester only.

**Humanities Program**—February 1, fall semester only.

**Pharm. D. Program**—February 1, fall semester only.

**Physical Therapy Certificate Program**—February 1, fall semester only.

**Physician Assistant Program**—January 15, summer session only.

Teacher Education Program—May 15 preceding the academic year in which the student plans to enroll in professional education courses.

**Determining Residence**

For admission, tuition, and fee purposes, the University registrar classifies all students enrolling in the University as residents or nonresidents of Iowa according to criteria established by the Iowa Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found under "Iowa Administrative Code Board of Regents" at the back of the Catalog.

**Graduate and Professional College Examinations**

Prospective Graduate College applicants should take the Graduate Record Examination (GRE) General Test or, if applying for admission in a department of the College of Business Administration other than Economics, the Graduate Management Admission Test (GMAT). Prospective students of the college of Dentistry, Law, or Medicine are required to take admissions tests of the respective colleges.

**Foreign Students**

The University of Iowa encourages foreign students to begin the process of applying for admission at least 12 months prior to enrollment. Applicants must satisfy all the application procedures and submit their complete application file to the Office of Admissions by the following dates.

- **Graduate College**—Students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships): February 1 for summer session or fall semester, October 1 for spring semester. Students applying to the Graduate College who do not require University financial support: March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

**Please Note**. The preceding deadlines are general Graduate College deadlines. Individual departments and programs may establish earlier deadlines, which are indicated in their materials. All departmental materials should be reviewed carefully for information about early deadlines.

- **College of Business Administration**—March 1 for summer session (June); March 1 for full semester (August); September 1 for spring semester (January).
- **College of Engineering**—March 1 for summer session (June); March 1 for full semester (August); September 1 for spring semester (January).
- **College of Liberal Arts**—March 1 for summer session (June); April 15 for fall semester (August); October 1 for spring semester (January).
- **College of Nursing**—April 15 for fall semester (August); October 1 for spring semester (January).
- **College of Pharmacy**—March 1 for fall semester (August).

**English Proficiency**

Applicants whose native language is not English must complete and submit results from the Test of English as a Foreign Language (TOEFL) unless they have received a degree from a university in the United States, the United Kingdom, English-speaking Africa, Canada (except French Quebec), Australia, or New Zealand.

- A minimum TOEFL score of 480 is required for admission to the Graduate College. New graduate students who score less than 550 on the TOEFL exam must complete an on-campus English proficiency evaluation prior to their first registration. Together with their academic advisors, graduate students determine if they must enroll in English as a Foreign Language (EFL) course work. Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores of at least 480 prior to their initial registration. The **College of Engineering** requires TOEFL scores of at least 550 for admission.

All newly admitted undergraduates are required to complete EFL course work recommended by the Department of Linguistics as a result of the English proficiency evaluation. Students must complete tax required EFL course work prior to enrolling in the rhetoric course that appears on their initial graduation progress report.

**Medical Information**

The **Student Health Services** provides health care to the undergraduate students. A medical history form, including all information about immunizations, must be completed by the student. Proof of
immunity to measles and mumps is a prerequisite to registration. Students will be sent the medical history forms after they are admitted to the University. Completed medical history forms should be returned to the Student Health Services. Should a registering student have any health problem, it is recommended that a report from the attending physician be sent to the Health Service so that continuing care can be provided.

Community College Affairs
The Office of Community College Affairs (OCCA) provides a variety of services for students transferring from community colleges. Students are encouraged to contact the office with questions concerning University services and procedures, the campus environment, and transfer policies.

Programs are conducted at The University of Iowa and at community college campuses at the request of the participating institutions. In addition, OCCA develops and distributes several publications useful to transfer students.

OCCA also coordinates a computerized system of information regarding course articulation agreements. This system contains lists of community college courses that have been approved by academic departments as meeting the requirements of various baccalaureate majors.

High School Preparation
Appropriate academic preparation for college-level studies is essential. University course work is offered with the assumption that students have the necessary background and proficiency to perform successfully. Entering freshmen should have the following high school preparation:

- Four years of English with as much emphasis on composition as possible;
- At least three years of mathematics (preferably more if an academic plan to pursue a science major);
- Three to four years of social studies and humanities course work;
- At least three years of science; and
- At least two years (but preferably four) of a foreign language.

Campus Visits
The Admissions Visitors Center is located at 230 North Clinton and is open weekdays and Saturday mornings throughout the year. Students and parents are always welcome and are encouraged to visit the campus. A campus visit could include a conference with an admissions counselor about academic opportunities and programs, financial aid, and housing; a campus walking tour; a tour of the residence halls; or an appointment with a faculty member or an academic advisor. Visits can be arranged by calling or writing to the Visitors Center.

Orientation Services
With the aid of representative student, faculty, and staff personnel, Orientation Services designs and conducts a wide variety of year-round programs to help new freshmen, transfer students, and graduate students with their transition to University life. Orientation is intended to assist new students with course scheduling, academic advising, and registration procedures and to acquaint them with the educational facilities, student services, and other available sources of help. In addition, Orientation Services' programming is designed to introduce new students to the social, cultural, and recreational opportunities to familiarize them with the physical layout of the campus, and to make them feel at home in the University community.

Records
All academic records are maintained by the Office of the Registrar and are not released without permission of the student.

Regents Exchange Program
University of Iowa students may take courses at either of the other two Regent universities for University of Iowa resident credit. Regular, out-of-state students in good standing at any of the three Regents universities may attend another Regents university for a maximum of two semesters; the credits earned at the other university will be counted as resident credit at the home institution. Approval for participation and credit in the exchange program must be obtained well in advance of registration; therefore, the student writing this must approve the acceptance of such credits if they are to apply in the spring and because time must be allowed to insure complete processing of the application between the cooperating universities within specified dates for excellence. Detailed information and application forms for the exchange program are available from the Office of the Registrar.

Tuition and Fees
The University's schedule of tuition and fees for full-time students, per semester, for the academic year 1968-69 is stated below. Extension credits are $4.25 per semester hour. Correspondence courses are $4.25 per semester hour. All fees are subject to change by action of the State Board of Regents.

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General fees provide for the student's use of the Iowa Memorial Union, libraries, laboratories, and gymnasium; free admission to minor sports events and to student-facility concerts; reduced rate for admission to University athletic events and theater productions; and performances by visiting stage and concert artists; subscriptions to the student newspapers, The Daily Iowan, delivered to housing units; certain student hospital services; and various other activities and services as announced.

Extension and correspondence fees do not provide for the above listed benefits.

Registration
All persons who attend University classes must first be admitted to the University and are required to register and pay the established tuition and fees. Students in the Graduate College and the colleges of Business Administration, Engineering, Liberal Arts, Dentistry, Law, Medicine, and Nursing may enroll courses with proper approval. Students who audit courses are assessed fees based on the lowest credit for which the course is offered that semester.

Payment of Student Accounts
Tuition and fees, board, room, and other University residence fees (including Dependent Housing expenses, and such incidental University expenses as library and parking fees) are payable on an installment basis, beginning on the first of September, October, and November for the fall semester, and the first of February, March, and April for the spring semester. Students with accounts ove the fifteenth of the month are reported to the
How Aid Is Determined

Eligibility for need-based aid at The University of Iowa is determined by the same method of family financial analysis that is used by other colleges and universities throughout the country. The steps are as follows:

The University determines the estimated costs for an academic year; this includes room and board, tuition, fees, books, and personal expenses.

Through the College Scholarship Service (CSS) or American College Testing (ACT), the University determines the contribution the student and his or her family can make toward educational costs, based on the family's income and assets.

Financial need is determined by subtracting the expected family contribution from the University's estimated costs.

Wherever possible, financial assistance is awarded toward meeting the financial need; however, due to the large number of applicants and the limited funds available, it is usually not possible to offer enough assistance to meet the financial need in full.

Eligibility for Aid

Students are eligible for federal aid if they are U.S. citizens or eligible non-citizens and demonstrate financial need as determined by the FAF or FAFSA.

In order to maintain eligibility for financial aid at the University, students must comply with the following reasonable academic progress standards:

Minimum Semester Hours:
Undergraduate students must earn 20 semester hours per academic year (fall, spring, and summer sessions combined) to maintain undergraduate status.

Minimum Grade-point Average:
Undergraduates must maintain a minimum grade-point average of 2.0 overall and 2.0 in their major fields of study for each semester of enrollment.

Eligibility for Financial Aid

Eligibility for financial aid will be cancelled for one or more of the following reasons: exhausting one's duration of eligibility, failing to meet the requirements for semester hours completion and grade-point average, and failing to meet the minimum requirements of a probationary term. These and other requirements and exceptions are outlined in detail in the Student Financial Aid Standards, which is available at the Office of Student Financial Aid.

Scholarships

Presidential, Dean's Scholarships

The University annually awards $2,500 Presidential Scholarships, renewable for a maximum of four years of University enrollment, to 20 high school students in recognition of their outstanding high school achievements.

Fifty Dean's Scholarships, also merit based, are awarded. These are freshman-year, non-renewable scholarships equivalent to the amount of resident tuition. For further information students should contact their high school guidance counselor or the Office of Admissions.

The Iowa Center for the Arts Scholarship

The Iowa Center for the Arts Scholarships are awarded primarily on the basis of academic achievement and expression of interest in the arts. Each department (art, dance, music, and theater) awards one scholarship to an entering freshman. The scholarship is the highest honor an entering freshman may receive. A maximum of four $2,500 awards are made. Non-renewable stipends are awarded. Each department sets its own eligibility and selection criteria and there is no Iowa residency requirement. For further information, students should contact their high school art teacher, the UI arts or the UI Office of Admissions.

The University of Iowa Minority Achievement Scholarship Program

The University of Iowa Minority Achievement Scholarships are awarded to minority students based on outstanding high school achievement. Ten scholarships for $2,500 per year are awarded; they are renewable for a maximum of four years. For further information students should contact the high school guidance counselor or the UI Office of Special Support Services.

National Merit Scholarships

The University sponsors a number of National Merit Scholarships for entering freshmen who have participated successfully in the National Merit Scholarship Program.
Scholarship competition. Based on financial need, these awards range from $750 to $2,000 per year and are renewable for a maximum of four years.

Freshman Honor Scholarships

Entering freshmen who qualify for participation in the College of Liberal Arts Honor Program by achieving a composite ACT score of 25 or above are recognized as Freshman Honor Scholars and automatically receive $100 Freshman Honor Awards. The scholarship is not based on financial need and is applied directly toward tuition.

Transfer Honor Scholarships

Iowa community college students transferring to the University with a 3.0 grade-point average or above automatically qualify for $100 Honor Scholarships. The scholarship is not based on financial need and is applied directly toward tuition.

Departmental Scholarships

For information about departmental scholarships, students should inquire at the offices of the academic programs of their interests.

General Scholarships

General scholarships are institutional funds awarded on the basis of financial need and academic achievement. An entering freshman must have an ACT composite score of 23 or above or rank in the upper 10 percent of his or her high school graduating class in order to qualify. Upperclass or transfer students must have at least a 3.0 cumulative grade-point average to qualify for the scholarship. The maximum amount of a scholarship is resident tuition and is applied directly toward tuition. The scholarships are for undergraduates without a bachelor's degree who are enrolled full time.

LaVerne Noyes Scholarships

LaVerne Noyes Scholarships are for U.S. citizens who are direct descendants of World War I army or navy veterans. Awards are based on financial need and are available to undergraduates without a bachelor's degree. Students must file the FAF/SFS and obtain the LaVerne Noyes application from the Office of Student Financial Aid.

Grants

Pell Grants

Undergraduate students without a bachelor's degree may be eligible for a Pell Grant. The awards range from $220 to $2,100 per academic year, depending on financial need and federal funding. Students must be enrolled at least half time in a degree program in order to be eligible. Students may use the FAF/SFS to apply for a Pell Grant, or they may obtain the application for Federal Student Aid from their high school or from any college or university financial aid office.

Supplemental Educational Opportunity Grants (SEOG)

The SEOG program provides federal aid to undergraduate students without a bachelor's degree who show exceptional financial need. The amount of the grant varies depending on financial need and federal funding. Recipients must be enrolled at least half time. The FAF/SFS determines eligibility for this program.

Educational Opportunity Program (EOP) Grants

Institutional funds are awarded to students admitted to the U of I Special Support Services program who show exceptional financial need. Parental income and asset information must be reported. The FAF/SFS determines eligibility for this program.

Graduate Tuition Grants

Graduate Tuition Grants are institutional funds for graduate students in degree programs. The grants are based on financial need and are applied directly toward tuition. The FAF/SFS determines eligibility for this program.

Loans

National Direct Student Loans (NDSL)

The NDSL is a long-term federal loan based on financial need. The amount of the award varies depending on federal funding. Students must be enrolled at least half time in a degree program. Repayment, at 5 percent interest, begins six months after recipients cease to be at least half-time students. The FAF/SFS determines eligibility for this program.

Guaranteed Student Loans (GSL)

The Guaranteed Student Loan is a low-interest long-term loan to students from a lender such as a bank, credit union, or savings and loan association. These loans are insured by a guaranty agency in each state and reinsured by the federal government. Students must be enrolled at least half time. The interest rate is 7.9 percent, and repayment begins when recipients cease to be at least half-time students. GSLs are available from the lending institution.

Health Professions Student Loan

Health Professions Loans are long-term federal loans for students enrolled full time in the College of Medicine, Veterinary Medicine, or Pharmacy. Amounts available depend on federal funding. The amount is 9 percent. The FAF/SFS determines eligibility for this program.

Nursing Student Loans

A long-term federal loan is available for students enrolled at least half time in the College of Nursing. Amounts available depend on federal funding. Repayment begins nine months after recipients cease to be at least half-time students. The interest is 6 percent. The FAF/SFS determines eligibility for this program.

Jobs

Part-Time Jobs

Student part-time employment can provide a meaningful work experience as well as assistance in meeting educational expenses. The University of Iowa employs nearly 9,000 students in a variety of positions. Ranging from accountant to writer, the types of jobs available offer students the opportunity to increase skills, gain experience, and earn money.

Student part-time employment is limited to 20 hours per week. The minimum wage paid is by state law at $3.35 per hour. Students employed on an hourly basis are paid by check once every two weeks.

Notices of job openings are posted on job boards located outside of the Office of Student Financial Aid or on the second floor of Caven Hall. The building is open from 7:30 a.m. to 5:00 p.m. Monday through Friday, and from 8 a.m. to 1 p.m. on Saturday.

The student newspaper, The Daily Iowan, also has listings in the classified ads. Friends, advisors, and instructors are other sources of information about jobs.

Students contact the employers directly to arrange interviews. The Office of Student Financial Aid does not operate a referral or placement service for student employees. However, students who are hired for jobs on campus must come to the Office of Student Financial Aid to process payroll paperwork.

College Work-Study

The College Work-Study Program is a federally funded program that helps students earn money to meet educational expenses. The amount of a student's College Work-Study eligibility is based on financial need and legislative funding. Students must be enrolled at least half time in a degree program. The work experience should complement and reinforce the educational goals of the student. College
Work-Study employees cannot work more than an average of 20 hours per week. The FAF or PPS determines eligibility for this program.

Other Sources of Aid

A guidance counselor or high school principal may have information on local scholarships, and school or public libraries are excellent sources for publications about financial aid. Many places of employment, professional associations, and labor unions have programs to help pay the cost of education for children of employees or members. Other sources include foundations, religious organizations, fraternal or sorority, town or city clubs, community organizations, and civic groups. A little searching on the student’s part may unearth some unexpected source of financial aid.

Information about financial assistance for physically handicapped students is available from the University’s Office of Services for the Handicapped.

Information about financial assistance for veterans of United States military service is available from the University’s Office of Veterans Services.

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50319).

Undergraduate Scholar Assistant works with professor

Additional Information for Graduate Students

The primary sources of financial aid available to graduate students are the University Teaching and Research Assistantships, University Teaching-Research Fellowships, scholarships, and Graduate College Fellowships. Information on these awards and appointments can be obtained from the graduate student's department or program.

The resource room of the University’s Division of Sponsored Programs has information on student aid available from non-University sources such as foundations and professional associations.
Computer registration at Calvin Hall
Academic Advising Offices

Faculty Advisers
Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Students with declared majors are assigned advisers in their major departments. Students without declared majors are assigned advisers in the Undergraduate Academic Advising Center. Students in professional colleges (Business Administration, Education, Engineering, Nursing Pharmacy, Dentistry, Law, and Medicine) are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

In addition to academic advising, advisers serve as general consultants to their advisees and refer those with special needs to appropriate support services.

Undergraduate Academic Advising Center
Professional advisers at the University's Undergraduate Academic Advising Center train to help students who wish to explore various fields of study as they select career paths and make academic plans appropriate to their interests. Advisers' offices are located conveniently in student residence halls.

College of Academic Advising
Each of the undergraduate colleges of the University has an academic/student affairs office. These offices are available to all students in the respective college for assistance with questions concerning academic regulations, degree requirements, grading options, career and degree plans, and other items of concern. They assist students who want to change advisers and majors, and they act on student complaints.

Cooperative Education
The Cooperative Education staff works with students, faculty, and employers to integrate work and study and contribute benefit to students' education through supervised work experiences. Participation in Cooperative Education here students seem to apply education in professional settings, earn professional experience before graduating, explore various major/career options through multiple Cooperative Education experiences, and earn from professionals about areas not covered in classes.

Office of International Education and Services (OIES)
The OIES is the focal point of the University’s international activities. It has administrative responsibility for the University’s foreign student/adult program and for the study abroad programs. It also has developmental responsibilities in international studies and technical cooperation activities. The OIES works to enrich the campus by adding an international dimension to it. The OIES promotes development of student and cooperation among the students of international studies, foreign language and area studies, cooperative and topical studies, and foreign language departments. It also assists faculty and students who work grants or fellowships for study or research with an international perspective.

Through technical cooperation and faculty exchange programs, the OIES encourages the development of formal links between University of Iowa departments and programs and their counterparts in foreign institutions.

The liaison officer for the Midwest Universities Commission for International Activities (MUCIA) is located in the OIES, encouraging involvement of University of Iowa faculty in MUCIA activities.

The OIES provides services and facilities and organizes extracurricular programs for both foreign and domestic students and faculty. It maintains a library with references on study, work, and travel in other countries, including information about foreign universities and study-abroad programs open to UI students. It also provides students study-abroad programs to complement their on-campus academic programs, and helps arrange that they can receive the credit earned for such activities. Students also obtain information and applications for the Fulbright, Marshall, and Fulbright awards at the OIES.

Foreign student advisers provide information, counseling, and services related to orientation, immigration regulations, financial aid, and issues with foreign government sponsors and sponsoring agencies, and help with problems and questions in areas not covered by academic advising. They sponsor or support educational programs, such as the Friends of International Students, the
Training Labs
Mathematics Tutorial Lab
The Mathematics Tutorial Laboratory, sponsored by the Department of Mathematics, serves as a training tool for students who do not have adequate high school mathematics preparation for the University's required math course. The primary function of the math lab is to provide tutoring to students enrolled in MATH-1 Basic Algebra I. The lab plays an integral part in the instructional effort of the MATH-1 course through remedial tutoring, preparation for assignments and tests, and individual tutoring when necessary. Students are encouraged by their lecturers and discussion leaders to use the math lab facilities.

The Mathematics Tutorial Lab also has tutoring rooms and hours available to assist students who are enrolled in MATH-2 Basic Algebra II, MATH-17 Quantitative Methods I, and MATH-8 Quantitative Methods II. As staff time permits, the math lab also provides tutoring services to students in other prerequisite mathematics courses.

The math lab is staffed by professional staff, faculty, and graduate student teaching assistants who are trained in helping math-anxious students.

Reading Lab
The Reading Lab of the Rhetoric Program provides a variety of individualized and class instruction for University students who want to improve their college-level reading performance. Working with the student, Reading Lab staff members arrange an individual reading program. These programs combine course reading that is difficult for the student with elective reading based on the student's interests.

The Reading Lab offers one service course, Voluntary Reading Lab, which requires the student to attend twice the hour twice a week. In the lab service course, which carries no credit and assigns no grades, students write about their reading and discuss it with a tutor.

The lab also offers 108 Rhetoric, a one-semester, two-quarter-hour course for students who need exceptional help preparing for college-level reading. And SP-33 Speed Reading Comprehension, SP-36 Speed Reading, and SP-40 Practical College Vocabulary, independent five-week modular courses for 1 semester hour of credit each.

Writing Lab
The Writing Lab provides individualized writing experiences for University students who feel inadequately prepared for college writing. Lab students discuss their work in personal conferences with teachers, who offer suggestions and seek to help the students become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and cogently.

Students can enroll for noncredit work in the lab throughout the semester; or they can register for the credit course (108 Rhetoric) before or after taking a required rhetoric course, or transfer to 108 Rhetoric from another rhetoric course after discussing their writing problems with their rhetoric teacher and the director of the Writing Lab.

Registrar
The Office of the Registrar determines the residence status of each student, issues University identification cards, supervises registration procedures, assesses fees, and maintains all students' academic records. It issues official transcripts and verifications and assists students in determining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations. The office also provides assistance to students concerning Selective Service and military service matters, and helps student veterans with University application and enrollment procedures and receipt of Veterans Administration benefits.

Transcripts
Students who have completed work at The University of Iowa can obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $1 for the first copy and $1 for each additional copy on the same order. An official transcript cannot be issued for a student who has a past due University account.

Services for Handicapped
The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with disabilities. The Office of Services for Handicapped (OSH) provides services to students with both visible and nonvisible disabilities. A wide range of disabilities are accommodated, including hearing and speech impairments, learning disabilities, mobility restrictions, visual impairments, and others. The goal of OSH is to help students with disabilities enjoy the same rights and assume the same responsibilities as do other students.

OSH works closely with University faculty and staff to ensure that students receive the maximum benefit from their experience at The University of Iowa. Assistance is provided in the areas of admission, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, and assistant and attendant care, and health services. The Office of Services for Handicapped helps students on an individual basis to locate the type of assistance appropriate to their needs, from securing tutors or personal attendants to finding tape recorders or emergency-loan wheelchairs.

Special Support Services
The Office of Special Support Services works to increase the racial diversity in the student body as well as to provide eligible students with academic, social, and financial support.

Special Support Services is made up of the following programs: The Upward Bound Project, New Dimensions in Learning, the African-American Cultural Center, the Chicano-American Cultural Center, the Undergraduate Educational Opportunities Program, and the Graduate and Professional Educational Opportunities Program.

General Services
Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the Campus Information Center provides information about campus and community activities and University services and operations; refers inquiries to appropriate campus and community resources; and compiles the master calendar of campus events. It also maintains the Housing Clearinghouse, which provides up-to-date listings of available rental units, city and campus maps, lists of maids, hotels, motels, and apartment complexes, and coordinates a roommate matchmaking service. The center is open seven days a week.

Campus Programs and Student Activities
The Office of Campus Programs and Student Activities (OCPSA) provides diverse and balanced programs and activities for the Iowa Memorial Union and the campus as a whole and assists students and student organizations.

Students are welcome to seek guidance from professional advisors in OCPSA about how they can find and become involved in organizations suited to their interests. Students with special needs who want to form new groups or organizations can request guidance from OCPSA staff, workshops and a well-stocked resource center are available to student organizations.

Campus programming and planning special events are ongoing tasks for program advisors and students. They include...
planning traditional events such as Homecoming and Brevet as well as new campus programs. OCPSA also sponsors the Art Resource Center, the Recreational Area, the Student Activities Center, the University Box Office, SCOPE, and Union Board, all in the Iowa Memorial Union.

Cultural Centers

Afro-American Cultural Center and Chicano/Indian American Cultural Center

The University operates the Afro-American Cultural Center and the Chicano/Indian American Cultural Center as places where students can meet to share experiences, find support, and relax in an atmosphere that emphasizes their cultural uniqueness. Both centers are run by University students.

The Afro-American Cultural Center sponsors discussion groups, orientation programs, movies, and class sessions. The house is decorated with art by African and Afro-American artists and has study areas, a kitchen, and a library of publications by African, Afro-American, and Third World authors.

The Chicano/Indian American Cultural Center sponsors conferences, lectures, and workshops, as well as a variety of outreach activities in Eastern Iowa. The center also houses a library of special interest books and periodicals and displays wall murals painted by students and guest artists.

Iowa International Center

The Iowa International Center, a facility operated by the Office of International Education and Services, is open to all University and Iowa City community members who have international interests. Facilities and programs are designed to encourage interaction among people of all cultures.

Sports and Recreation

Intercollegiate Athletics for Men

The University of Iowa is a member of the Western Intercollegiate Conference of Faculty Representatives (Big Ten) and has athletic programs in football, basketball, track and field, baseball, swimming, golf, wrestling, tennis, cross-country, and gymnastics. Operating policies are determined by the Board of Control of Athletics, which is composed of 12 members from the University's teaching and administrative staff, two University alumni, one representative from the University Staff Council, and two students.

Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic teams in basketball, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. All ten varsity teams compete for championships sponsored by the Western Intercollegiate Conference of Faculty Representatives (Big Ten Conference) and the National Collegiate Athletic Association (NCAA). Athletic scholarships are available in all ten programs to qualified student-athletes. In 1982 women's intercollegiate athletics was included under the University Board in Control of Athletics.

Intramural Sports and Recreational Services

The Division of Recreational Services administers a program of more than 30 intramural sports and recreational activities for all interested University students and offers a wide range of recreational lesson programs in activities such as martial arts, golf, aerobics, bowling, swimming, and gymnastics. The division provides incidental activities for students, faculty, and staff members, and their spouses and families, including basketball, badminton, volleyball, weightlifting, tennis, swimming, handball, paddleball, racquetball, squash, canoeing, golf, archery, weight training, tennis, and jogging.

The division's Touch the Earth Outdoor Program offers such activities as rafting, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, ice-fishing, ice skates, and cross-country skiing equipment also are available for rent at a minimal fee.

The division also manages the Macbride Nature Reserve, a 452-acre wooded terrains situated on three sides by the Coralville Reservoir and Lake Macbride north of Iowa City. Primitive campiages, hiking trails, cross-country ski trails, sailboat and canoe rental, picnic sites, and an archery range are available for public use.

Iowa Memorial Union

The Iowa Memorial Union in the hub of student life. It includes the Campus Information Center; the University Box Office and catering services; the Office of Campus Disenroll and Student Activities; a coffeehouse with live entertainment; films; a variety of food services; a recreation area with billiards and card tables, games, an arts and craft resource center; a bookstore; rooms for lectures, concerts, meetings, and social events; and art and sculpture display areas. The adjoining Iowa House has 118 guest rooms for parents, alumni, conference participants, and other Visitors to the campus. Also housed in the union are the Student Activities Center and student organization offices, University Counseling Service, the Career Information Services office, the Center for Conferences and Institutes, a copy center, and a barber shop.

Health Services

The Student Health Service are located in the Student Health Administrative Services building. All registered students at the University, except those who are registered in off-campus courses, are eligible for complimentary care at the Student Health Clinic. There are charges for laboratory procedures, x-rays, accident examinations, minor surgery, and some special procedures. All students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans.

University Counseling Service

The University Counseling Service staff of professional psychologists, social workers, and advanced doctoral students offers educational, vocational, and personal counseling and therapy to individual or group in the counseling room, in small group programs, workshops, and consultation activities. All services are available to students without cost.

Veteran's Services

The Office of Veteran's Services is part of the Office of the Registrar. It serves veterans, dependents of veterans, veterans' widows and widowers relating to Veteran Administration educational benefits, University registration, and study at the University.

Women's Resource and Action Center

The Women's Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of University and community women. WRAC advocates the removal of all barriers to equal access and self-determination, including barriers of racism and classism as well as those based on physical ability and sex. Through its feminist programs and services, the WRAC is committed to empowering Iowa women through providing information, skills, and support.

The WRAC provides a resource for many women's organizations: sponsors a Brown Bag Lunchtime program; offers evening and weekend workshops, lectures, films, and...
Housing

Fair Housing Policy

The following is the University's statement on fair housing practices: "It is the firm policy of the University that housing shall be rented to all students on the basis of their individual merits as persons, without exclusion or discrimination on the basis of race, creed, color, or national origin."

Iowa has a fair housing ordinance providing for equal opportunity to secure housing without discrimination due to race, religion, or ancestry, except in certain instances involving owner-occupied dwelling units. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.

University Residence Halls

Residence hall programs, policies, procedures, and employment practices are consistent with the University human rights policies, the State Board of Regents nondiscrimination policy, and—where appropriate—with the state of Iowa civil rights and federal regulations on equality of opportunity and affirmative action.

University residence hall furnishings, facilities, and services are designed to provide a pleasant atmosphere conducive to effective study.

Single, double, triple, and quad room halls with all or partial board are available in the Grand Avenue Residence Halls (west campus), which include Hill Hall, Quadrangle, South Quadrangle, Quadrow, and Slater halls, and in the Clinton Street Residence Halls (east campus), which include Surgey, Carter, Davis, Mayflower, and Stanley halls. There are lounges, study areas, game rooms, coin laundry facilities, and small stores in or available to each residence hall. Computer terminals, reference materials, borrowing libraries, and private rooms for group study sessions are available in three monitored learning centers.

Each residence hall is divided into small living units. Each hall has a live-in hall coordinator, and there is a student residence assistant in each living unit. All students are encouraged to participate in residence hall government to plan programs and discuss issues.

Student- and staff-initiated programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Residence halls are named in residence halls. Academic advising centers and tutorial sessions are also available.

Students who do not live in residence halls may purchase hall or partial board contracts.

Applications and Assignments

With their admission application forms, prospective undergraduate students receive separate forms on which to apply for residence hall accommodations. A student applying for residence hall accommodations should read the forms and conditions of the contract, provide all information requested on the application form, sign the contract portion, and return the completed application with a check for $50 to the University Housing Assignment Office, Barge Hall.

Students will not receive a room assignment until they have been admitted to the University. However, students may apply for housing at the same time they apply for University admission.

Roommate assignment is made without regard to race, color, nationality, or religion.

The residence hall application contract and $50 advance payment constitute a contract offer. An application may be withdrawn by notifying the University Housing Assignment Office in writing before the application becomes a binding contract. The application becomes binding approximately ten days after the University Housing Assignment Office issues notice of acceptance of the contract and assignment of accommodations.

Upon written request, the $50 advance payment is refunded to applicants who are not admitted to the University and to those who cancel their residence hall contracts in accordance with the terms and conditions set forth in the contract.

Rates

Basic rates for University residence hall accommodations for the 1986-87 academic year are $2,244 for a double room and $2,067 for a triplex, with hall rates. Rates for the several available room and board options vary according to the accommodations, and all rates are subject to change annually.

Family Housing

There are 799 University-operated apartments available to married students or legally defined family units in the Hawkeye Drive, Hawkeye Court, Hawkeye Park, and Purdytown complexes.

Rents for 1986-87 range from $148.25 to $131.75 per month for one-bedroom units and from $177.25 to $226.75 for two-bedroom units, not including gas, electricity, and telephone. All units are internetworked. Rates are subject to change annually.

Family housing is assigned according to the order in which applications are received. The applicant must meet all University admission requirements before an assignment can be made. Applications may be filed before completion of admission, but will not be accepted more than a year in advance.

Off-Campus Housing

The Housing Clearinghouse, located at the Campus Information Center in the Iowa Memorial Union, maintains and provides accurate, up-to-date listings of available rental units in the Iowa City area, including large apartment complexes, smaller complexes, rooms to private homes, and one-, two-, and three-bedroom duplexes and houses. The clearinghouse also suggests other resources of use in looking for housing, and offers a packet of helpful information for prospective residents of the area.

Fraternities and Sororities

Twenty-three undergraduate and six professional fraternities operate chapter houses at Iowa. House accommodates 35 to 45 men.

Undergraduate fraternities are Acacia, Alpha Epilson Pi, Alpha Tau Omega, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Phi, Phi Kappa Sigma, Pi Kappa Alpha, Sigma Alpha Epilson, Sigma Alpha Mu, Sigma Chi, Sigma Nu, Sigma Phi Epilson, Sigma Pi, Sigma Tau Gamma, Tau Kappa Epsilon, and Theta Xi.

Professional fraternities operating chapter houses are Alpha Chi Sigma (Cherubism), Alpha Kappa Kappa (medicine), Delta Sigma Delta (dentistry), Pi Kappa Pi (medicine), Phi Rho Sigma (medicine), and Phi Omega Lambda.

The 16 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Alpha Delta Delta, Alpha Gamma Delta,
Code of Student Life

As members of the academic community, students are encouraged to develop a capacity for critical judgment and to engage in sustained and independent search for truth. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends on appropriate opportunities and conditions in the classrooms, on the campus, and in the larger community. Students are expected to exercise their freedom to learn without encroachment by others. The code applies only to actions that have adversely affected a university process or function or some direct and clear interest of the university as an academic community. Students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.

University Policy on Human Rights

The University of Iowa holds all in common right of educational goals persons of many nations, races, and creeds. The University is guided by the principle that in no aspect of its programs shall there be differences in the treatment of persons because of sex, creed, color, national origin, age, sex, or any other classifications that do not relate to educational goals. Persons of all races, colors, national origins, ages, sexes, and other classifications shall be available to all. Among the classifications that deprive the person of consideration as an individual are those based on sexual or associational preference. This principle is to be observed in the internal policies and practices of the University, specifically in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University shall work cooperatively with the community in furthering this principle.

Student Complaints Concerning Faculty Actions

Student complaints concerning actions of faculty members are pursued through the informal mechanism established in each college for this purpose. Although there is some variation among colleges, these mechanisms generally involve the following steps:

1. The student should first attempt to resolve the issue with the faculty member involved.

2. If a satisfactory outcome is not obtained, the student may file a written complaint with the dean of the college.

3. If the complaint is denied, the student may appeal to the faculty relations committee of the college.

4. If the appeal is denied, the student may file a complaint with the appropriate college administrator or by the President of the University.

Policy on Sexual Harassment

Under the Regents Rules of Personal Conduct and the University of Iowa Human Rights Policy, faculty, staff, and students have a right to be free from sexual harassment by colleagues, supervisors, or teachers. The University does not condone actions and words that a reasonable person would regard as unreasonably intimidating or coercive. Individuals who feel that they have been the victim of such harassment should advise their supervisor, dean or, if the University of Iowa affirmative action officer. In investigating such complaints, the following principles are observed.

The person bringing the complaint would suffer no retaliation.

The complaint must not be discussed with anyone else without the complainant's permission.

If permitted, the complaint is pursued and investigated. No action can be taken by the head of the major administrative unit in which the complaint was brought or by a designer of that administrator.

In conducting such an investigation, the complaint is not publicized, both of the complainant and the accused, must be respected.

The investigation must be conducted as quickly as possible and the results reported to the complainant.

In the event that the complaint is found to be invalid, the person who has been guilty of sexual harassment must receive appropriate counseling or disciplinary action, as would be the case in other instances of violation of University policy.
Special Resources at Iowa

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Studying at the Museum of Natural History
Research Activities

The University recognizes that its creative activity is indispensable if its teaching is to have the relevance, depth, and effectiveness expected of a distinguished institution of higher learning. The University holds that the term "research" should be applied to creative work in all fields of imaginative and intellectual life. The Office of the Vice-President for Research maintains an overview of the many individual research commitments of the Institution and actively promotes, in a variety of ways, the research mission of the University and the educational development efforts of the faculty. The institute has an interlocking relationship with the Graduate College because of the interdepartmental character of the graduate college and its close connection between the graduate programs and research and creative activity. The University Research Council assists the vice-president for educational development and research in a regular advisory capacity. The council consists of two faculty members who are widely recognized for their personal involvements in basic research or creative activity, two representatives of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences and humanities, and two from the faculty at-large. The council has responsibility for formulating and considering approval of standards and procedures governing the University's research and creative activities, the evaluation of grant proposals and procedures concerning the securing and allocating funds for support of research and creative activity, advising the administration related to the general research and creative functions of the University and the health of liberal scholarship on the campus.

Programs

With the advice of the University Research Council, the vice-president for educational development and research currently supports the following programs.

Junior Faculty Research Support

A limited amount of money is available each year from the National Institutes of Health for the support of the initial research efforts of junior faculty (certain specified areas of Medicine, Health, Medicine, and Pharmacy) who want to do health-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose that will assist the faculty member in conducting an initial exploration of a hypothesis that he or she believes lies ahead in the development of a full-fledged program of research.

Incidental Grants

Limited funds also are available in the Office of the Vice-President for Educational Development and Research for small grants to faculty members to cover the cost of supplies, equipment, proposal writing, and clerical related to specific research projects; for faculty travel related to specific research projects; or for the purpose of acquiring skills, knowledge, or techniques that will enhance research at the University; and for honoraria or expenses of visiting lecturers.

Services

The Office of the Vice-President for Educational Development and Research also provides services for several interdisciplinary services required by faculty members engaged in research and creative activities. They include the following.

Central Research Facilities

To maintain state-of-the-art facilities for each research discipline within the University, selected facilities are identified for centrally supported research. Such facilities are available to all interested researchers in the University. They currently include the following.

Computer-Assisted Image Analysis Facility

The Image Analysis Facility, located in the Medical Research Center, provides equipment and technical assistance for research programs involving digital image processing and analysis.

Two Gould Deana 8550 Imaging Processing systems and a PS550 Evans and Sutherland system are in operation, along with two MicroVax II minicomputer systems, an Elscint EC-200 digital camera, and various microstorage peripherals. Acquisition software includes Micro VAX, XPORT, and Pascal complex, as well as the Gould Deana Library of Image Processing software (LIPS).

The facility has the capacity to digitize images from microscopic slides, autoradiograms, photographs, and video signals. Large storage peripherals allow for the transfer of images that have been digitized elsewhere. Once digitized, images may be processed in a number of ways, including pseudo-color coding, edge detection, and gray-scale enhancement techniques.

The facility is well equipped for molecular biology using computer.

Electron Probe Microanalysis (EPMA) Facility

The EPMA Facility possesses instrumentation for the chemical microanalysis of solid specimens and/or bulk analysis of solid, liquid, or powdered specimens. Primary instrumentation includes an extensively upgraded Applied Research Laboratories DPM-5S electron microprobe X-ray analyzer with three crystal spectrometer, a 50-kV silicon drift detection system, a digital beam-current system, and a digital beam-current system. The electron beam may be scanned by analog or digital control, and image modes are available for backscattered electrons, secondary electrons, and transmitted electrons, and characteristic X-rays. Automated image analysis is possible for the location, sizing, and chemical characterization of small objects (0.1-1.5 micrometers) in the scanned image. This instrumentation incorporates an energy-dispersive X-ray energy-dispersive system, which permits the rapid qualitative or quantitative analysis of bulk specimens to ppm levels.

Located in the Dental Science Building, the EPMA Facility is available to all faculty, staff, and students in their research programs. Experienced investigators frequently perform their own analyses, but arrangements may be made to have samples analyzed by the facility staff. Training sessions are provided for inexperienced investigators and demonstrations of equipment capabilities are performed upon request.

Electron Microscopy (EM) Facility

The Electron Microscopy Facility provides instrumentation and technical assistance for research programs involving the use of scanning and transmission electron microscopy. The facility includes a JEOL JSM-5310 scanning electron microscope equipped with a Varian X-ray microanalysis system, a Hitachi H-400 transmission electron microscope equipped with STEM and TV, and a Jeol JSM-250 SEM microanalysis system. A Balzers 570 freeze-fracture/freeze-drying apparatus, an automatic tissue processor, glass plate machines, and ultramicrotomes include a Reichert Ultracut E microtome and a Zeiss EM-10 electron microscope. Image analysis systems, vacuum evaporators, critical point dryers, light microscopes, centrifuges, ovens, and fully equipped photographic darkrooms.

The facility also provides all solutions and supplies necessary for investigations involving specialized staining and embedding techniques, negative-staining contrastion, metal-coating, autoradiography, electron microscopy, and immunocytochemistry, morphometry, sample preparation for SEM and freeze fracture, the preparation of material...
science samples for both TEM and SEM, and other procedures. A modern library containing tests and reviews of various applications of TEM and SEM also is available.

The facility is intended to serve both the experiment and the science investigator and to provide training for those who need it. All or parts of a project can be handled by the facility staff. All instrumentation is available on a first-come, first-served basis. The laboratory is located in the Bowen Science Building of the College of Medicine.

Flow Cytometry Facility

The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, hematology, cell physiology, and cell kinetics. It is equipped with an advanced fluorescence-activated cell sorter (Becton Dickinson FACS), which is interfaced to computerized data acquisition and storage electronics. The flow cytometer will measure any cell's detectable cellular property, such as fluorescence or size, to generate population distributions. Up to four parameters may be concurrently evaluated per cell. A variety of cell types and macromolecules can be quantitated. Detectable parameters include two spectral regions of fluorescence, narrow-angle light scattering, and fluorescence polarization anisotropy. Optical calibration is done with an argon ion laser with ultraviolet capability. The instrument was physically isolated in an enclosed room to yield viable cells for subsequent experimental use. The facility provides supplies, chemicals, and equipment for staining cells with fluorochromes, tissue culture dishes, and a Zeiss fluorescence microscope. It is housed in the Medical Laboratories of the College of Medicine. Educational tours are conducted upon request.

High Field Nuclear Magnetic Resonance Facility

A recently acquired superconducting Bruker WM 360 spectrometer forms the basis for the High Field NMR Facility. The spectrometer magnet operates at 94.5 kilogauss, and a frequency of 300 MHz is utilized for proton observation. Very high spectral resolution and sensitivity can be achieved for studies of complex molecules in solution. Multinuclear, variable temperature, and selective pulse experiments are possible. Both hard and floppy disc systems provide data storage. Either digital or standard X-plotting is available. Pyrolysis NMR spectra are recorded in form sample tubes, carbon-13 spectra are obtained from 5mm or 1Hnm tubes, and heteronuclear spectra are observed. The NMR spectra of amino acids, thymine, d-amino, and thymine DNA are very close to those of the corresponding proton and thymine-19 decoupling of carbon-13 spectra is possible. For the usual user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user after an appropriate training period. The facility is located in the northwest ground floor area of the Chemistry-Boxy Building.

High Speed Computational Facility

The High Speed Computational Facility, located in the Institute Computer Center, fills the gap between conventional computing provided by University of Iowa departmental equipment and supercomputers provided at national centers. A joint venture of the Center for Computer-Aided Design and Wieg Computing Center, the facility provides state-of-the-art, high-speed computational support for research by faculty, staff, and students. Support services include assistance in program adaptation for execution on facility computers, assistance in vectorization of code for more efficient use of facility equipment and off-site supercomputers, development of improved communication equipment and software to permit researchers to effectively use supercomputers that are available in a variety of federally supported facilities, and access by graduate students as part of their graduate education.

Major instrumentation consists of a VAX-11/780 supercomputer with associated peripherals and a CSSI 6420 High Speed Arithmetic Processor. Communications equipment provides campus-wide terminal access.


Large Scale Fermentation Facility

The Large Scale Fermentation Facility, located in the Bowen Science Building, makes possible the large-scale growth and recovery of microorganisms as yeasts and bacteria. With its new, sophisticated growth, monitoring, control, and harvesting systems, the facility is one of only four medium or large-scale fermentors in the United States that are able to grow thermotrophic bacteria; and it is one of only five or six such facilities able to grow extremely thermophilic bacteria at 70-100 degree C. The largest vessel in the facility—100 liters—a selected for strict containment of genetically engineered organisms.

The facility director is available for consultation on medium composition, fermentor conditions, and growth strategies. Further services are provided in areas such as inoculum preparation, medium preparation, sterilization, process initialization, inoculation (growth monitoring if required), and harvesting. Users can arrange for preliminary pilot studies, gas chromatography, and other off-site technical and scientific services.

Laser Facility

The Laser Facility consists of a variety of modern laser instrumentation. In particular, state-of-the-art (Ar Argon ion and Krrypton ion lasers (with ultraviolet capabilities) are employed, either alone or in conjunction with a Tunable Dye Laser System, throughout the visible and near infrared regions of the spectrum. Each CW Laser is routinely operated single mode with a line width of one to two-thousandths of a reciprocal centimeter. This instrumentation is located in a spacious laboratory that occupies the entire first floor of the southeast wing of the Chemistry-Botany Building. It includes a mechanically and thermally stable 40-foot-long enclosed optical bench with a variety of work stations for users.

Protein Structure Facility

The University of Iowa Protein Structure Facility, located in the Bowen Science Building, provides instrumentation and expertise to assist investigators with the preparation of pure proteins and peptides. The facility can analyze amino acid composition and sequence and can conduct high-sensitivity spectroscopic measurements, rapid kinetics measurements, and analyses of hydrodynamic properties. The facility serves a broad range of disciplines in the biological sciences, including biochemistry, molecular biology, and physiology.

Sponsored Programs

The Division of Sponsored Programs maintains a resource center that contains information on federal and nonfederal sources of funding for study and research projects by faculty and graduate students. Graduate students may inquire about funding for advanced study in the United States or abroad.

The division also publishes "Research and Graduate Fellowship Opportunities," a faculty/staff newsletter, that contains program and deadline information and carries a special section devoted to sources of funds for graduate study and research. The newsletter is available in departmental offices. Further inquiries about graduate opportunities are welcome at the resource center.

The Division of Sponsored Programs is a source of information on public and private agencies that provide funds for research and study, including pre- and post-doctoral fellowships. Staff members are available to locate potential funding agencies, assist in the preparation of grant applications, and provide advice and counsel on funding applications. The staff also assists in processing an application through the University and in locating the
Center for Health Services Research

The Center for Health Services Research conducts a program of research and education in health care policy and management. Center staff includes an interdisciplinary core of faculty associates drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration, and Liberal arts, as well as from The University of Iowa Hospitals and Clinics. The Graduate Program in Hospital and Health Administration accepted responsibility for the management and development of the University’s Center for Health Services Research in 1981.

Technology Innovation Center

The University of Iowa Technology Innovation Center (TIC) offers a range of services and facilities designed to foster the development of new business ventures—particularly those that make use of the specialized knowledge that the faculty and center are dedicated to the needs of entrepreneurs just starting up. However, TIC gladly serve established companies eager to attract new entrepreneurs.

The strength of the center lies in its ability to connect the scientific and technical capabilities of the University with the many enterprises of the business community. The University’s Oakdale campus, TIC provides comfortable, inexpensive work space where collaborations between academic scientists and those in business can flourish. It offers ready access to the University’s computing facilities, research equipment, and instruments, as well as access to a battery of counseling services on crucial issues such as management, marketing, and finance.

Funded in part by a grant from the state of Iowa and the Iowa High Technology Council, the Technology Innovation Center works in close consultation with the University to serve as a truly public institution.

University House

University House, established in 1937, is a place and program dedicated to the support of faculty development and interdisciplinary research. Occupying 35 offices and meeting rooms in Oakdale Hall on the University’s Oakdale Campus, University House is a place free from common distractions where faculty members can work individually or in collaboration on scholarly tasks. Faculty members in all disciplines and institutions are eligible to request appointments at University House. University of Iowa professors enjoy the relative seclusion of University House and the opportunity to meet faculty from other disciplines. Visiting professors come to University House to gain easy access to University library and other research services and to act as mentors to University scholars working in related areas of research. Collaborators from government departments and institutions, as well as with the University House, have a productive environment.

University House has a particular interest in promoting collaborative efforts. The Interdisciplinary Research Grant program, unique in the nation, supports scholarly projects conducted by two or more University-faculty members from different disciplines. University House also frequently sponsors research and curriculum development projects of faculty members from liberal arts colleges in the Midwest, often undertaken in collaboration with University faculty members.

More informal opportunities for collaboration are offered by University House seminars and frequent lunches in the cafeteria.

In addition to promoting faculty development in general, University House seeks to bring together University centers, institutes, corporations, and other groups into consortial interdisciplinary arrangements that foster the acquisition of external support for research and educational development.

All scholars at University House are provided with a private office and secretarial assistance and have access to personal computers, conference rooms, kitchen, and in many cases a car. Oakdale Hall is the center for University House and its many activities, and is the location for the University House reception area.

University House offers a variety of services, such as housing and office space, meeting rooms, and other facilities.

Video Center

The University Video Center provides high-quality video services and facilities, including those necessary to submit and promote research activities. It also coordinates video equipment purchase and inventory and promotes efficient University support of campus video. Toward the end, the center has the personal and facility resources to assist users in the purchase of equipment and supplies, and in production and postproduction activities. Additionally, the center provides basic system design and maintains guidelines for equipment standardization.

Weeg Computing Center

The Weeg P. Weeg Computing Center (WCC), located in the Lindquist Center, provides research and instructional computing facilities to all students, faculty, and staff at The University of Iowa. Weeg Computing Center maintains systems capable of an extremely wide variety of applications. These facilities are accessible through many terminals conveniently distributed around the campus.

WCC is connected to BNET, a higher education computing network that connects academic institutions in the United States. BNET also serves as a gateway to other national and international computing networks.

In addition to terminals and general-purpose computing systems, facilities are available for producing manuscript-quality printed and graphic output.

WCC’s Personal Computing Support Center provides product demonstrations of microcomputer equipment, admissions the Faculty/Staff and Student Microcomputer Purchasing Program, and access to software support for academic and software support for the campus microcomputer users.

WCC supports covers such diverse areas as spreadsheet and numerical analysis, financial modeling, text editing and formatting, graphics, and data base management.

Non-credit educational seminars and computer on general computer use are available on an ongoing basis. Specialized training is also provided for equipment and software selection, troubleshooters, support staff, and computer design.

Detailed information on computing facilities and services may be obtained from the WCC Information Center in the Lindquist Center.

Related Units

Although not directly connected with the Office of the Vice-President for Educational Development and Research, these units had a special role in the conduct of research at the University.

Institutes

Dows Institute for Dental Research
Contact the College of Dentistry for further information.

Industrial Relations Institute
See the “College of Business Administration” section for further information.

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University Libraries

University Librarian: Dale B. Earnest
Assistant University Librarian: Ross W. Atkinson, Richard M. Kohler, Wayne Rawley, William C. Sayre
Acquisitions: Kathleen S. Wadell, Avee; C. Heuser, Ms.; W. J. Temple
Book conservators: William Anthony
Catalogers: Tessa Lauten, Avee; David A. Arnott, John J. Dodu, Robert H. Fearing, Grace A. Haugland, Lawrence, Germany; Judith K. Gruney, John Pace Howitt, Karl R. Kuhler, Avee; C. Kuhler, Sena S. Lin, Bonnie S. Mitch, Mary E. Monson, George F. Mullally, Mary Z. Poblock, Timothy R. Shope, Daniele C. G. van Emmick
Circulation: Susan Marks, Avee; Margaret Richmond, Circulation and Serials
Procter, Ann: Circulation and Serials
Government publications: Carollyn W. Kohler, Avee; Frank L. Allen, C. Joyce Glaueh; Mary R. Nitsche
Reference: Helen B. Ryan, Avee; Sandra S. Balbach, Marsha A. Fricke, David D. Hudson, Rebecca L. Johnson, James J. Juchit, Kathryn J. Kipfer, Laura A. Marino, John D. Martin, Keith A. Ragatz, John N. Schacht
Serials: Ruth E. Catch, Charlene E. Lerman, Mark G. Willius
Special collections: Robert A. McCall, Avee; Robert S. Green, Carl W. Rogers
Departmental librarian: Marlin L. Ethord, Avee; L. Ethord, Avee
Archives: Patricia H. Fossey, Peter J. Nistico, Avee; Nistico, Avee
Business administration: John W. Foye, Avee; engineering: Susan Z. Zapp, Avee; David S. Curry, Robert W. Crider, Richard Grone, Kevin A. Hiltunen, Margery R. Jensen, Sue E. Lenchick, Erin T. Ramsey, Avee; Avee; Avee; Avee; Avee; Avee
Acquisitions: Sandra S. Balbach, Avee; Avee; Avee
Mathematics: Jean O. Pulverer, Avee; Avee; Avee; Avee; Avee
Linguistics: Jack W. Dryer, Avee; Avee; Avee; Avee; Avee
Psicology: Avee; Avee; Avee; Avee; Avee

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Center for New Music
See "Music" in the "College of Liberal Arts" section of the Catalog.

Center for Rehabilitation Engineering
Contact the Department of Biomedical Engineering in the College of Engineering for information.

Center for the Study of Recent History of the United States
Contact the Department of History in the College of Liberal Arts for information.

Clinical Research Center
See the "College of Medicine" section of the Catalog.

Comparative Legislative Research Center
See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Core Center: Diabetes and Endocrinology
See the "College of Medicine" section of the Catalog.

Digestive Disease Core Center
Contact the College of Medicine for information.

Iowa Center for Communication Study
See "Journalism and Mass Communication" in the "College of Liberal Arts" section of the Catalog.

Iowa Urban Community Research Center
See "Sociology" in the "College of Liberal Arts" section of the Catalog.

National Research Center on Family-Based Services
Contact the School of Social Work in the College of Liberal Arts for information.

Nuclear Research Center
Contact the College of Medicine for information.

Laboratories
Iowa Lakeside Laboratory
See "Iowa Lakeside Laboratory" in the "College of Liberal Arts" and "Continuing Education" sections of the Catalog.

Laboratory for Political Research
See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Transportation Laboratory
Contact the College of Liberal Arts for information.

Clinics
Lipid Research Clinic
Contact the College of Medicine for information.

Others
Birth Defects and Genetic Disorders Unit
Contact the College of Medicine for information.

Cooperative Studies of Affective Disorders
Contact the Department of Psychiatry in the College of Medicine for information.

Gerontology Programs
Contact the School of Social Work in the College of Liberal Arts for information.

Iowa Pesticide Hazard Assessment Program
Contact the College of Medicine for information.

Iowa Testing Programs
See the "College of Education" section of the Catalog.

Social Science Data Archive
See "Political Science" in the "College of Liberal Arts" section of the Catalog.
The University of Iowa Hospitals and Clinics make up the largest university-owned teaching hospital complex in the nation. They provide the clinical base for the graduate and undergraduate studies for thousands of students in the health disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, occupational therapy, pastoral studies, and social work.

University Hospitals and Clinics sponsor residency programs in which 650 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they choose to pursue.

There are 913 beds in the hospital complex, accommodating some 38,000 admissions annually. In addition, 135 specialty clinics accommodate another 356,000 ambulatory patient visits each year. Nearly 15,000 major surgical procedures are performed annually in the hospital's 21 major operating rooms. Approximately 3,000 infants are delivered every year.

Highly specialized health services—for example, burn care, cardiac care, neonatal intensive care, and advanced technology for diagnosis and treatment—are easily accessible to Iowans who reside in communities without such resources. The hospital's transportation fleet of 16 vehicles travels more than two million passenger-miles each year, transporting 4,027 Iowans. The Air Care Emergency Helicopter Service carries specially trained medical and nursing teams to aid the most critically ill and injured and to transport them to the hospital for treatment. Many Iowans owe their lives to this service alone.

More than 6,000 hospital staff members are involved each year in providing professional and support services needed to care for approximately 2,500 patients. The hospitals' clinical staff includes more than 450 faculty physicians and dentists, and the house staff numbers almost 600 resident and fellow physicians and doctors. The hospitals' Department of Nursing is staffed by more than 1,380 professional nurses.

Other hospital staff members annually provide about 170,000 X-ray examinations and treatments for approximately 15,380 patients, perform more than 25,000 operations, and carry out more than 12,000 X-ray therapy treatments, and prepare more than 40,000 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, coronary care, and urology units. The seven-story, 815-foot Tower addition went into service in 1976, providing expanded and replacement facilities for a variety of inpatient and outpatient services. The $48 million Roy Carver Pavilion, named in honor of a $2 million gift from the late Mrs. Roy Carver, opened in 1974.

The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored jointly by the Iowa State Department of Health, which provides personnel, salaries, and operating expenses, and the University, which provides space and equipment.

The bureau's primary purpose is to promote a program of dental health education and disease prevention in the public and parochial schools of the state. Senior dental hygiene students from the University conduct team programs with the public health dental hygienists of the Iowa State Department of Health. These programs include instruction in oral hygiene, good dental health practices, and nutrition as related to dental health. The bureau also supplies dental instructional materials to schools to remind parents of the need for regular dental care for their children.

Council on Speech Pathology and Audiology

The council coordinates clinical services in speech pathology and audiology offered within the College of Medicine and Dentistry, the Iowa City Veterans Administration Medical Center, and the Department of Speech Pathology and Audiology.

Dental Service

The dental clinics at The University of Iowa College of Dentistry are primarily for educational purposes. All employees of the University and all students who are registered at the University may receive dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Services and does not render service under the student health hospitalization fund. Fees are established for all treatment rendered, and patients must pay cash.

Health Occupations Education

Through this program, the University collaborates with the State Department of Public Instruction to provide consulting and advisory services, educate teachers, conduct research, and develop curricula and instructional materials for health occupations education programs for students in the part of Iowa's 15 area community colleges, not at a rapidly growing number of high schools. The Health Occupations Education staff also advise these institutions in their increasingly important role in conducting continuing education.

Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the colleges of Dentistry, Medicine, Nursing, and Pharmacy. The graduate program in Hospital and Health Administration, and the Department of Speech Pathology and Audiology. The library is the largest of the departmental libraries in the University library system. The Health Sciences Library contains more than...
University (State) Hygienic Laboratory

As the state of Iowa's environmental and pediatric health laboratory, the University Hygienic Laboratory offers diagnostic, screening, analytic, training, and consulting services in bacteriology, immunology, parasitology, industrial hygiene, toxicology, virology, public health physics, mycology, and radiation chemistry. It provides complete laboratory program support to the State Department of Health; Bureau of Laboratory; Department of Water, Air, and Waste Management; and State Geological Survey.

In the environmental area, the laboratory provides a wide variety of services related to water, wastewater, hazardous waste, and air quality monitoring and analysis; pesticide and herbicide analyses; mineral and water analyses.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analyses, and is one of only 25 laboratories in the nation certified to perform analyses for hazardous waste sites under the USEPA Superfund Program. It is an accredited industrial hygiene laboratory and holds an interstate license for diagnostic services involved in hotel food screening and for Enteric metabolic analyses in the newborn and for the HED virus.

When The University of Iowa, the Hygienic Laboratory provides instruction in and training in diagnostic microbiology and virology as part of regular academic courses, as well as in environmental engineering studies. In addition, the Hygienic Laboratory provides classroom and individual bench training to university students and to laboratory and medical personnel administering and sharing specific laboratory procedures. Laboratory staff members also are available to University faculty, health care staff, and students for technical consultation.

Specialized Child Health Services

The Iowa Specialized Child Health Services is an organization that administers statewide child health programs. Among these are the Genetic Counseling Service, Corneal Disease Prevention Program, Cystic Fibrosis Program, Childhood Cancer Services and Treatment Program, Rural Comprehensive Care Program for Hispanic Patients, Statewide Perinatal Care Program, Iowa Newborn Neonatal Intensive Care Program, Community Child Health Center Program, and a program for Regional Child Health Specialty Clinics.

As Regional Child Health Specialty Clinics (RCHSC) conducts in communities throughout the state, Iowa residents are provided with health and evaluation services in pediatrics, orthopaedic, otolaryngology, speech pathology, audiology, physical therapy, nutrition, and clinical and educational psychology. The specializations offered by the University of Iowa are the core of the graduate program in audiology and speech pathology and provides monitoring and follow-up services on special health problems. These core specializations include muscular dystrophy, mental retardation, phenylketonuria, and hemophilia.

University Hospital School

A University-supported program that deals with a problem of developmentally disabled mothers and their infants, the University Hospital School serves as the locus of activity for the Division of Developmental Disabilities within the Department of Pediatrics. It is an integral part of the tertiary-level health services available through The University of Iowa Hospitals and Clinics.

The interdisciplinary team approach provides services involving the fields of medicine, dentistry, nutrition, nursing, speech and audiology, physical and occupational therapy; psychological, social work, special education, and preprofessional and vocational activities.

Outpatient services provide comprehensive evaluation and follow-up of infants, children, and young adults who have problems or disabilities that affect their development. Medical care and therapy are planned in conjunction with the child's family and, where appropriate, with the parents and community-based service agencies. A staff includes a number of special clinics (Child Development Clinic, Neuromuscular Clinic; Metabolic Disorders Management Clinic; Infant and Young Child Clinic; Infant and Young Adult Clinic) in which specially trained staff address specific problems.

Infants, children, and young adults may be admitted to the inpatient unit as a result of recommendations from one of the outpatient programs. Short-term admissions are for problems specifically identified that can best be accomplished on an inpatient basis. The staff coordinates educational services with the child's local school system in order to maintain continuity of services while the children are in this unit.

Training activities include pre- and in-service lectures, workshops, practicums, and seminars for a variety of care providers working in school facilities or community programs. These activities take place in the University and community setting.

University Hospital School cooperates closely with the state Developmental Disabilities Council and other state agencies to provide training and technical assistance to those programs.

Laboratories of the divisions of genetics and biochemistry of the Department of Pediatrics are used extensively in University-wide research, training, and service programs.
University Speech, Language, and Hearing Clinic
Located in the Wendell Johnson Speech and Hearing Clinic at the University, this clinic provides outpatient evaluation and consultation for individuals with speech, language, and hearing problems, day-camp habilitation or rehabilitation programs for persons who wish to become more self-sufficient, and community outreach programs for speech, language, and hearing problems, and training for students in speech pathology and audiology. Any University student may receive most services without charge. Services include diagnostic examinations, consultations, individual clinic sessions, small group sessions, and referrals to other clinics as needed.

Veterans Administration Medical Center
Medical students and residents receive much of their clinical training in this 357-bed medical center, a comprehensive health care facility in Iowa City. Veterans Administration Medical Center facilities utilized by The University of Iowa Health Center include, but are not limited to, laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastrointestinal diseases. The Veterans Administration Medical Center, which is also affiliated with the University of Iowa, is a teaching institution that provides training opportunities in clinical pharmacology, gynecology, cardiology, nephrology, oncology, and applied immunology.

The Iowa Center for the Arts
Located along the west bank of the Iowa River on The University of Iowa campus, the Iowa Center for the Arts is a cultural and educational resource for the University community, as well as for the people of the state and region. The center, which celebrated its 50th anniversary in 1985-86, realizes a University dream of many generations: to bring the arts together in a single campus setting, near the geographical heart of the University.

The arts center includes many of the facilities that contribute to the success of Liberal Arts, together with the Museum of Art, the Theatre Building, Cresap Recital Hall, Hansen Hall, The Opera Studio, and Voxmen Hall in the School of Music, and Hancher Auditorium, the center’s largest performing arts showcase.

In addition to activities housed in these facilities, various educational programs in other parts of the arts campus reflect the University’s strong commitment to artistic creativity.

Financial support from many sources, both public and private, is reflected in the physical structure and educational/curricular offerings of the Iowa Center for the Arts. In addition to resources from the state of Iowa and the federal government, private contributions from growing numbers of corporate and individual patrons play an important role in the quality and diversity of the center’s services to the people of Iowa and the surrounding region.

School of Art and Art History
The University of Iowa School of Art and Art History has been a pioneering force for art in America for more than half a century. The original art building dates from 1936. Major additions were added in 1969-70, greatly expanding classroom and studio space and providing a new wing for sculpture.

A small gallery within the building, used primarily for the display of works by students and visiting artists, is named for artist Elise Wicke, who in 1924 became the first recipient of the Master of Arts degree in studio art at The University of Iowa.

The school’s Corborey Gallery, located in the Old Music Building, features exhibits of new and experimental work created at The University of Iowa by major visiting artists. The gallery presents lectures and performances that emphasize new concepts and directions in contemporary art.

Museum of Art
The University of Iowa Museum of Art provides an outstanding example of enrichment of the arts through generous private support. In the early 1960s, Owen and Lucille Elliott of Cedar Rapids offered to the University their extensive collection of nineteenth- and twentieth-century paintings, prints, sculpture, and photography, on the condition that a museum be built to house it, along with the University’s existing and future acquisitions of art.

In response to this challenge, more than 2,500 individuals and organizations contributed funds for the museum’s construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation’s finest university museums. A gift from the late industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1976. With the Carver Wing, the museum has 48,000 square feet of exhibition space in 16 galleries, plus behind-the-scenes work areas essential to the functioning of a major museum. Each year thousands of visitors, including school children of all ages, visit the museum to see displays of the permanent collections and traveling exhibitions. The permanent collection of more than 5,000 works of art includes the Elliott Collection, nineteenth- and twentieth-century sculpture, drawings, photographs, contemporary ceramics, and pre-Columbian art.

One of the most prized collections is the Stanley Collection of African Sculpture. A gift of Eliza and the late Max Stanley of Muscatine. The addition of this collection gives the museum one of the leading university-based African art collections in the country.

The Print Study Room houses more than 2,000 prints representing major artists. The Lasselya Room houses a collection of prints and drawings created by printmaker Mauricio Lasansky, emeritus professor of art at The University. Many Lasansky prints are gifts from Weber and Gloria Croehan of Iowa City.

Museum special events include slide lectures by visiting artists, scholars, and collectors; Music in the Museum, a Sunday afternoon concert series; and art study trips to other cities and countries. Museum docents lead groups to guided tours of the museum’s exhibitions. Catalogues of many exhibitions are available for purchase, Friends of the Museum of Art, a private support group, sponsors receptions, spring faculty lectures, and an active Print and Drawing Study Club.

University Theatres
The Theatre Building houses the Department of Theatre Arts. It is the home of Moje Theatre, a 477-seat theater that is the traditional setting for many major University productions each year. A major addition to the Theatre Building has consolidated all production facilities in one location and added two studio theatres.

The Playwrights Workshop, one of the three distinguished writing workshops in the Department of English, is in joint venture with the Department of Theatre Arts.

School of Music
Opened in 1971-72, the new home of the School of Music was designed to be functional and conventional, its broad corridors lead from rehearsal rooms to two auditoriums and to the stage of Hancher Auditorium. In a given year, faculty groups and student ensembles present at least 50 recitals, concerts, and additional plays to a total of nearly 300 concerts and 300. Typical music recitals and instrumental recitals are presented by students.

Clapp Recital Hall, with its hand-crafted Cavanian tracker organ, seats 725 for
public concert. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school's largest ensemble (symphony orchestra, bands, Opera Theatre, and choir) performs regularly in Hancher Auditorium. The Opera Studio, opened in 1953, is the scene for smaller productions of the Opera Theatre.

The school has produced over 200 actors since 1958, take other major events presented. Opera Theatre and chorus, performs regularly in Hancher Auditorium. The Opera Studio, opened in 1953, is the scene for smaller productions of the Opera Theatre.

The School of Music is at the vanguard of innovation in the arts, creating and performing works in new forms. Its Center for Music New Media, originally funded by the Rockefeller Foundation, is a laboratory and extension of the composition area. Faculty and student members of the Center for Music New Media form a repertoire ensemble for the performance of both new compositions and masterworks of the twentieth century.

Two experimental music studios provide a wide variety of technical capability for creation and musical forms, including computer-generated music. In Video Laser, the faculty has the most advanced laser deflection systems of any university utilizing laser beams in brilliant colors to produce visual effects in sound. Outstanding recording facilities link the various performance spaces of the School of Music/Hancher Auditorium complex with a central recording studio in the School of Music.

Hancher Auditorium

Hancher Auditorium is a regional cultural resource of the highest quality. The School of Music has hosted events totaling nearly 2 million people. The auditorium is located in the rectangular, two-story, handicapped and provides wheelchair seating. Hancher auditorium has hosted the holistic, hearing augmentation system, which is available free-of-charge to patrons with hearing impairment.

Programs for the productions of the school are supported by the Hancher Auditorium Endowment Fund, which has recently raised $2.5 million. A further endowment to maintain the auditorium's leadership in music, theater, and dance.

In addition to performances by the various units of the Iowa Center for the Arts each year, Hancher Auditorium hosts events from around the world. The most recent events were the world premiere of the Hancher stage—solos, ensembles, theater, opera, dance, and music—comics, major symphony orchestras, and ethnic companies from other nations and cultures. The school's priority is in the purchase of tickets at reduced rates for those students who are regular attenders of Hancher events.

The auditorium has become a Midwest showplace. Rambunctious kidlets, a café and gift shop, excellent acoustics, and a surprising intimacy in its interior design make it one of the foremost concert halls in America. But it is much more than a showcase. It also is a splendid educational plant, designed as an extension of the classroom and laboratory facilities of all of the performing units of the Iowa Center for the Arts.

For students of the various theater arts, the auditorium has a scenic construction and costume shops, nearly 50 sets of scenery for temporary changes, and a sophisticated lighting and control system. For music students, Hancher is a concert hall on the premises.

The stage itself is an uncommon educational resource. Its processions are 70 feet wide. With its wings, the stage area is 175 feet long, 50 feet wide, and eight stories high. Mobile units of a concert shell can be installed quickly on stage for various concert requirements.

Hancher Auditorium features another dimension in the University's educational and cultural facilities for its students and the people of Iowa. The auditorium is an active advocate of the arts in the region. For example, Hancher has been the primary sponsor of the Iowa Dance Residencies Program, which has brought important dance companies to extended summer residencies, including workshops and performances in communities throughout the region.

Arts Center Outreach

Cultural projects and programs that utilize the talents of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Center Outreach Program. Designed to reach new audiences and to serve special constituencies (schools, centers for seniors, nursing homes, hospitals, handicapped, service organizations, special community events, etc.), this program is intended to share the University's cultural resources as widely as possible throughout the state.

Consistent with the University's resources, these outreach programs are tailored to local needs and interests. In addition to programming throughout the state, the Arts Center Outreach office schedules on-campus conferences, workshops, and educational projects.

Dance Program

The University of Iowa Dance Program is the only dance program in the Department of Physical Education and Dance. Dance faculty and students appear in their own productions during the year and participate with other units of the Iowa Center for the Arts in interdepartmental projects. The Dance Program is enriched by frequent visits from professional dancers, choreographers, and leading dance companies of this and other countries. The professional visitors often come not to perform but to lecture on dance techniques and classes.

Broadcasting and Film

The Televising Center and the radio stations WUSL-AM and KXBN-AM are key components of broadcasting and film, which is housed in the new Communication Studies Building. The entire community serves as its "location" laboratory for students in this division.

The Writing Programs

A longtime program of special distinction in the Department of English, the Writers Workshop encompasses fiction, poetry, translation, and rewriting. The workshop provides opportunities for talented writers to work and with established poets, novelists, and playwrights.

The International Writing Program brings accomplished writers of many nationalities to the University for extended periods of writing and translating their works into English and into another language.

These writing programs are recognized in many countries, and have won widespread private support from foundations, interest groups, corporations, individuals, and the U.S. State Department.

Windover Press

The skills of making books by hand—using hand tools, hand tools, and hand tools—have been learned in the workshop of the Windover Press in the School of Letters.

The Windover Press is one of the nation's small companies of distinguished hand papermaking, its limited editions frequently cited or considered the excellence by the American Institute of Graphic Arts, whose prestigious competitions involve all of the major publishers in the country.

Museum of Natural History

The Museum, located in MacFarland Hall, is an outgrowth of the Cabinet of Natural History, which was established in 1868 by act of the Iowa General Assembly. It is the oldest university museum of the Midwest.

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Public Information and University Relations
The Office of Public Information and University Relations (OPUR) works to promote understanding of, participation in, and support of the University's mission and activities, both within the University community and among the general public. It seeks to maintain an effective information program through the use of internal and external media; coordinates the University administration on matters involving public information and University relations; and serves as a liaison between the central administration and appropriate University, governmental, civic, and other groups.

University public information programs are implemented through the combined efforts of OPUR's individual units on campus, including those that specialize in coverage of the performing arts, the health sciences, and women's intercollegiate athletics, as well as general news, broadcast news, and photography units. These units supply news, photos, and information to print and electronic media, gather and prepare informative material for specific and general interest publications, answer inquiries for information, and assist writers, photographers, and broadcasters who visit the campus.

OPUR publishes the general University Calendar of Events, Parent Times for students' parents; the newsletter for faculty and staff; Ambience, featuring forthcoming arts activities; and Spectator for alumni and friends of the University. The department also includes the Office of State Relations, serves as the executive office of the Parents Association; and provides campus housing for other services for University visitors and guests. In addition, OPUR has management responsibility for the Department of Publications.

Other Resources
Publications
The Department of Publications offers services to assist publishing and publishing needs of the University. It provides printing, editing, design, and printing of publications. Copy centers located around the campus print quickly, inexpensively, and with duplicating service for University units and for students. The department also operates Campus Stores, a unit that produces and sells manuals, lab notebooks, and other instructional materials created by the faculty and not commercially available, and an order fulfillment unit for books and periodicals of the University. The department is responsible for University compliance with the printing regulations of Iowa, including provision for obtaining competitive bids on printing purchased outside the University.

The University of Iowa Alumni Association
The principal agency through which Iowa students conserve their identification with the University after they leave the campus is The University of Iowa Alumni Association. Organized in 1867, its current membership includes undergraduate and former students throughout the world. Its continuing objectives are to strengthen ties between alumni and the University to implement programs of service to alumni, to strengthen public recognition of the University, to develop alumni participation vital to the stability and well-being of the state and the nation, and to enhance the University's stature, to serve the University in strengthening its programs of teaching, research, and public service. The association publishes The Iowa Alumni Review, a quarterly magazine for association members.

The University of Iowa Foundation
The University of Iowa Foundation was organized in 1906 to help the University obtain the greatest possible educational benefit from private giving. It raises funds for this objective through three major programs: annual giving, capital campaigns, and planned or deferred giving. The foundation is a private, nonprofit corporation empowered to solicit and receive gifts and bequests; to accept trust and trust funds subject to the conditions imposed on them; and to invest, administer, manage, or distribute gifts, bequests, and trusts—all for the benefit of The University of Iowa. The foundation is community at work to provide needed funds for study, research, and extension, development, research, library acquisitions, and programs and projects throughout the University.

Old Capitol
Old Capitol is the central landmark of the University. It was the capitol of the Territory of Iowa from 1832 until 1846 and the capitol of the state of Iowa from 1846 until 1857, when the government moved to Des Moines and gave the "old" capitol to the University as its first permanent building. Various University offices and departments have been located in Old Capitol through the years, and it housed the office of the University president continuously from 1869 to 1970, when the president's office was relocated to the building for the restoration of Old Capitol as a historic site. Of the rooms were restored in the 1840s and 1850s. Two were restored to the 1920s to represent the University years. Old Capitol was reopened in 1976 as a "living museum." Guided tours are conducted daily without charge.
University of Iowa Press

The University of Iowa Press was established to publish significant results of original scholarly research and significant creative work in the arts. The imprint is controlled by the University Editorial Advisory Board, composed of faculty members and students appointed by the vice-president for educational development and research.

Evaluation and Examination Service

The Placement and Examination Service administers placement and exempting tests designed to assist entering students in course selection. The Service also provides registration information and administration of local and national test programs including the American College Testing Program (ACT), College Level Examination Program (CLEP), Medical College Admission Test (MCAT), Graduate Record Examinations (GRE) Aptitude Test, Graduate Management Admission Test (GMAT), Law School Admissions Test (LSAT), Test of English As A Foreign Language (TOEFL), and the National Teacher’s Exam (NTE).

For faculty and staff, the Exam Service duplicates, scores, and analyzes classroom tests; assists in planning and processing course evaluation; conducts institutional research; prepares reports and technical bulletins pertaining to test development, grading, questionnaires design, and student profiles; and provides consultation on questionnaire development and use.

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Dean: Guenter Luebking
Assist. dean of academic programs: James A. Linskey
Associate dean of development and research: George D. Ens
Associate dean of faculty: Julia B. Davis
Assistant dean of academic programs: Miriam Gerbland
Director of honors: Lewis P. Levin
The educational programs offered in the College of Liberal Arts provide the necessary foundations for the specialized education or training that many occupations and professions require. They prepare the prerequisites for professional study in medicine, nursing, and pharmacy, and in business, law, and education, and they form the basis for graduate work. These programs also provide a general education, which by itself prepares students for a broad range of occupations.

Liberal education is general in the breadth of intellectual and social interests, but it is not superficial. The College of Liberal Arts offers 59 specific degree programs, each requiring extensive study in a particular academic discipline or in a set of related disciplines. These array of educational programs available in the college gives students a wide choice of major and minor fields of study.

Regardless of the major a student selects, the curriculum of the college exposes all students to work in mathematics, in logic or quantitative reasoning, and in a foreign language, and to a course in reading, speaking, and writing. Further, all students must become acquainted with the study of history, the natural sciences, the social sciences, and the humanities, as well as with civilizations and cultures remote in time or space.

These General Education Requirements are designed to enable students to understand the physical world to which they live, the social order in which they act, and the values of the civilizations they have inherited. The discoveries of scholars and the creative work of artists and writers in this century have greatly expanded our knowledge of natural and social phenomena and have heightened our aesthetic sensibilities. The complexity of the modern world is measured by our increased ability to understand it. This understanding, however, depends more than ever on a liberal education.

It is the mission of the College of Liberal Arts to make that general education available, and to guide students through the many options they have in obtaining it. A Liberal education compensates for the narrowing that is the price of specialisation. It develops the capacity to sort significant questions, to find answers, to reject dogma, to be free of superstition, and to adapt to change.

College Organization

The internal organization of the College of Liberal Arts reflects its diversified character. The college is composed of units of various names: divisions, schools, departments, programs, and nondepartmental units. There are two divisions in the college. The Division of Fine Arts includes the School of Art and Art History, the School of Music, the Department of Communication Studies, and the Department of Theatre Arts. The Division of Mathematical Sciences includes the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science. Within the college there are seven schools. In addition to the School of Art and Art History and the School of Music, there are schools of Journalism and Mass Communication, Letters, Library and Information Sciences, Religion, and Social Work. Every formally organized department and program provides instruction in the college and other majors leading to one or more degrees, minors, or certfications in a particular field.

The College of Liberal Arts is closely linked with the professional colleges of the University. Some departments in other colleges offer degrees and minors in Liberal Arts; similarly, other colleges may accept minors for work done in Liberal Arts. For example, students admitted to the Teacher Education Program of the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for undergraduates enrolled in the colleges of Business Administration, Engineering, Nursing, and Pharmacy.

Degrees, minors, and certificates awarded by the college, as well as available programs, are described in full under separate entries in the Catalog.

Liberal Arts Office of Academic Programs

The Liberal Arts Office of Academic Programs, located in 116 Schaeffer Hall, functions as an integral part of the Office of the Dean of the College of Liberal Arts.

The Office of Academic Programs is a vital resource for information about the curriculum, policies, and regulations of the college. Students would visit the Office of Academic Programs to obtain information about the requirements, including the General Education Requirements; the Bachelor of General Studies (B.G.S.) and other degree programs; minors offered in the college; the College-Level Examination Program (CLEP) and the Advanced Placement Program (AP); auditing courses; pass-no pass and satisfactory-failing grading; and the second-grade-only option.

Students also should visit the Office of Academic Programs to declare or to change majors, to file the second-grade-only option, or to request a dean's signature for various administrative actions, such as late registration, adding or dropping courses, and withdrawal of registration.

The Office of Academic Programs monitors the actions of academic probation, dismissal, and readmission. It adjudicates appeals brought by students concerning academic matters or refers them to the student appeals committee. Working closely with the committee on student academic appeals, the Office of Academic Programs considers evidence and recommends appropriate disciplinary action in cases of student dishonesty or misconduct.

Degrees Offered

Students graduating from the College of Liberal Arts may earn Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), Bachelor of General Studies (B.G.S.), and Bachelor of Liberal Studies (B.L.S.) degrees.

Major Fields

The college centers degrees as indicated in the following major fields:

African studies—B.S.
American studies—B.A.
Archaeology—B.A.
Anthropology—B.A.
Art—B.A., B.F.A.
Arabic languages and literature—B.A.
Asian studies—B.A.
Astronomy—B.A., B.S.
Biochemistry—B.A., B.S.
Biology—B.A., B.S.
Botany—B.A., B.S.
Chemistry—B.A., B.S.
Classics—B.A.
Communication studies—B.A.
Computing and information science—B.A., B.S.
Computer science—B.A., B.S.
Dance—B.A.
Dental hygiene—B.S.
Early childhood education—B.A., B.S.
Economics—B.A., B.S.
Elementary education—B.A., B.S.
English—B.A.
Exercise science—B.S.
Film—B.A., B.S.
Geography—B.A., B.S.
Geology—B.A., B.S.
German—B.A.
Greek—B.A.
Health occupations education—B.A., B.S.
History—B.A.
Home economics—B.A., B.S.
Italian—B.A.
Journalism and mass communication—B.A., B.S.
Latin—B.A.
Linguistics—B.A.
Litterature, science, and the arts—B.A.
Mathematics—B.A., B.S.
Microbiology—B.S.
Music—B.A., B.M.
Philosophy—B.A.
Physical education—B.A., B.S.
Physics—B.A., B.S.
Political science—B.A., B.S.
Portuguese—B.A.
Psychology—B.A., B.S.
 Recreation education—B.S.
Religion—B.A.
Russian—B.A.
Science education—B.A., B.S.
Social studies—B.A.
Social work—B.A.
Sociology—B.A., B.S.
Spanish—B.A.
Special education—B.A., B.S.
Speech and hearing sciences—B.A., B.S.
Statistics—B.S.
Theatre arts—B.A.
Theatre B.G.S. and B.L.S. degrees are awarded with no major designation.

Major Programs

Majors in Education and the Teacher Education Programs

Students may declare a major in one of the fields of education at the time of admission or may change their majors to one of these fields any time after enrolling. In order to be allowed to enroll in the foundation (major) courses in education, the student must be admitted to the Teacher Education Program (TEP).

To be admitted to the TEP, a student must have attained sophomore standing (28 semester hours) and must have earned a total cumulative grade-point average of at least 2.3. Transfer students who meet these standards may be admitted to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain a 2.3 total cumulative grade-point average.

Application forms for admission to the TEP may be obtained in the Office of Student Services in the College of Education. Students admitted will be notified in writing. For more information, see the “College of Education” section of the Catalog.

Double Majors

Students may meet the major requirements in more than one department, and, if the departments award the same major, the student may earn a single bachelor’s degree with two or more majors (for example, a B.A. in history and English or a B.S. in psychology and mathematics). For further information, see “Double Majors” under “Requirements for the Major,” below.

Specializations within Degree Programs

Many degree-granting units in the college offer internal specializations. Some of these are formal options within degree programs. For example, broadcasting and film are offered in the Department of Communication Studies, and apparel and textile merchandising and design are offered in the Department of Home Economics Specializations in Chinese, Hindi, Japanese, or Sanskrit are available to students seeking a B.A. in Asian Languages and Literatures. The School of Art and Art History and the School of Music have many different tracks leading to bachelor’s degrees: studio emphasis, art history emphasis, and art education: music education, music history, music therapy, composition theory, and performance. These are only a few examples of the many options within degree programs. Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication Studies and the School of Journalism and Mass Communication; photography and graphic design specializations with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in various social sciences departments.

For more information on specializations within and between programs, see the program descriptions in the Catalog and advisers in the appropriate departments.

Interdisciplinary Opportunities

A number of interdisciplinary programs in the College of Liberal Arts offer majors, specializations within degrees, minors, or certificates. These programs include African Studies (certificate), Afro-American Studies (minor or specialization within the B.A. in American Studies), Aging Studies (minor or certificate), Global Studies (minor, certificate, or honors interdisciplinary major), Latin American Studies (minor or certificate), Literature, Science, and the Arts (B.A.); and Women’s Studies (minor).

Specific requirements for these interdisciplinary majors, specializations, minors, and certificates are described in the departmental sections of the Catalog.

Honors Interdisciplinary Major

Honors students may pursue an individually planned major in an area of study that draws on courses from two or more departments, as approved by the honors advisors from the departments concerned and the director of honors. The major must consist of at least 36 semester hours of courses, including 6 or more semester hours of courses bearing honors registration, and lead to a degree with interdisciplinary honors. The program of study must be submitted for approval no later than the junior year.

In recent years baccalaureate degrees have been conferred with interdisciplinary honors in the following areas: correctional studies, global studies, humanities, international affairs, international development studies, literature, history, and philosophy, media studies, and methodological social sciences.

Early Admission to Medicine or Dentistry

Students who are planning to go to medical or dental school and have been accepted to the University of Iowa College of Medicine or College of Dentistry or to any accredited medical or dental school in the United States that offers advanced degrees.
Early Admission to Medicine or Dentistry at Iowa

Students must meet certain requirements to be eligible for admission to the College of Liberal Arts after early admission to The University of Iowa College of Medicine or College of Dentistry. Prior to enrolling in the professional college, a student must have earned at least 90 semester hours, fulfilled all University General Education Requirements, met the requirements for a major, and satisfied the residence requirement of the College of Liberal Arts.

After the student successfully completes the first year of medical or dental school, the College of Liberal Arts, on verification of an official transcript, will award the student 20 semester hours of ungraded elective credit that may be applied toward a baccalaureate degree. However, no more than 30 semester hours earned in the professional college after the student transfers from the College of Liberal Arts may be counted as elective credit toward a degree from the College of Liberal Arts.

Early Admission to Other Medical or Dental Schools

If students accept early admission to an accredited medical or dental college in the United States other than The University of Iowa, they should apply to the graduation analysis division of the Office of the Registrar during their final semester in residence at The University of Iowa for permission to take the combined degree program. Students must meet the requirements given above for early admission to a medical or dental school, the registrar will inform students how to apply for a baccalaureate degree from Iowa.

Combined Degree Program: Liberal Arts and Engineering

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible to admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant to the dean of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting a representative of the Office of Admissions and the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisors from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. Students in the combined program normally can meet the baccalaureate degree requirements of both colleges in about five academic years, however, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in liberal arts and engineering.

Students selecting this program will be required to complete the General Education Requirements, the requirements for the major, and the major requirement, in the College of Liberal Arts. The specific engineering courses taken by the student will vary according to the engineering specialty selected. Since the courses in science, mathematics, and the socio-humanities are accepted regularly for credit by both colleges, the student is in many cases, satisfying the requirements for two colleges by taking a particular course.

Two or More Bachelor's Degrees

Students who wish to earn an additional bachelor's degree's must be admitted to the college and must complete at least 30 additional consecutive hours of study in residence in the college beyond the first degree. Holders of the B.A. and B.S. degree will be considered to have satisfied all the college requirements for graduation except the foreign language requirement. The foreign language requirement must be met by students with a B.A. or B.S. degree from other colleges also must satisfy the residence requirement for a bachelor's degree at Iowa.


Total Hours Earned

Students who enter as beginning freshmen must earn a total of 124 semester hours of credit. The number of required to transfer a student is established in the student's academic statement.

Satisfactory Grade-Point Average

The general requirements for graduation include the element of quality as well as quantity of work completed. Candidates for the B.A., B.S., B.F.A., and B.M. degrees must satisfactorily complete the college minimum grade-point average of C (2.0) in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the major field, including 2.8 in all University of Iowa major work.

B.S. students select the qualitative requirements for graduation by earning a grade-point average of at least 2.0 in all college work attempted, all work undertaken at The University of Iowa, and all advanced courses attempted.

Residence

Students must meet the residence requirement. This may be met by earning the final 30 consecutive semester hours in residence, or completing the last 60 semester hours in residence, or

At total of at least 48 semester hours in residence.

Nonresident instruction includes course work at other colleges and universities, course work earned while enrolled in other undergraduate colleges at The University of Iowa, and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

General Education Requirements

Students who enroll at The University of Iowa for the first time after May 1962 must complete the following General Education Requirements for the B.A., B.S., B.F.A., and B.M. degrees. Students who enroll at The University of Iowa for the first time after July 1990 must complete the following General Education Requirements for the B.G.S. degree.

Rhetoric: one or two courses (4-6 s.h.);
Mathematics: two years of high school algebra and one year of high school geometry, or satisfactory test scores, or courses at The University of Iowa (0-9 s.h.);
Physical Education: four courses (4 s.h.);
Foreign Language: for the B.A. degree, the equivalent of four semesters (four years in high school) of a foreign language (0-8 s.h.); for the B.S., B.G.S., B.F.A., and B.M. degrees, the equivalent of two semesters (two years in high school) of a foreign language (0-8 s.h.);
Foreign Civilization and Culture: one approved course (3-4 s.h.);
Historical Perspectives: two approved courses (6 s.h.).
Humanities: 40 credits: The Interpretation of Literature and two approved courses (9-14 credits).

Natural Sciences: two approved courses, one of which must be a laboratory component (1-2 credits).

Quantitative or Formal Reasoning: one approved course (3-4 credits).

Social Sciences: two approved courses (6-8 credits).

Old Core/Skills Requirements

Students who registered for the first time at Iowa for any session prior to June 1962 and who graduate by May 1968 may satisfy either the General Education Requirements or the old course requirements for graduation. The old course requirements include basic skills (rhetoric, mathematics, and physical education skills), core courses (historical-cultural, literature, natural science, and social science), and foreign language. Students who are eligible to graduate under the old course requirements must file a request in writing in the Graduation Analysis section of the Registrar's Office. Students seeking additional information about the old course requirements should contact the Liberal Arts Office at Academic Programs.

The United Program

The United Program (UP) is a four-year program of integrated general education courses for a specific group of students who choose the program when they are freshmen. UP satisfies all of the College of Liberal Arts General Education Requirements except the foreign language and physical education requirements, and each UP course is interchangeable with an equivalent approved course. All students in UP take the same courses in a given semester. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only freshmen may enter UP.

Rhetoric

All students must register for their assigned rhetoric course in the fall of their first registration and continue to enroll in rhetoric courses until the requirement is completed. Once enrolled in a rhetoric course, a student may not drop the course. No more than 8 semester hours of credit earned in rhetoric courses may be counted toward a bachelor's degree.

All transfer students, regardless of the number of courses they transfer, must satisfy the rhetoric requirement.

The rhetoric requirement may be completed in one of the following ways:

- By passing 101.1 and 101.2 Rhetoric for 8 semester hours.
- By passing 103 Rhetoric for 4 semester hours.

By passing the speech test and 101.4 Rhetoric for 2 semester hours.

By passing the writing test and 36C.25 Principles of Speech Communication for 2 semester hours, or

By passing both the speech and writing tests.

Placement and exemption tests are given during the first week of classes to students registered in rhetoric courses. Exemption from part or all of the requirement may be awarded on the basis of these tests. (Academic credit will not be given.)

Mathematics

The General Education Requirement in mathematics may be satisfied through high school courses, satisfactory test scores, courses at The University of Iowa, or transfer courses, as specified below. The requirement should be met by the end of the student's first year in residence or during the fall semester of the student's second year in residence at The University of Iowa.

High School Courses

Successful completion of two years of high school algebra and one year of high school geometry (or their equivalent in college preparatory mathematics) satisfies the mathematics requirement.

SAT/ACT Test Scores

ACT: A score of 26 or above on the mathematics subscore of the ACT general test battery satisfies the mathematics requirement.

MPT: A passing score on the University of Iowa Mathematics Proficiency Test (MPT) satisfies the mathematics requirement. Scores from this test also are used to recommend placement in mathematics courses at Iowa. (No academic credit is awarded for passing the MPT.)

Coursera at The University of Iowa

Successful completion of the required mathematics courses at The University of Iowa satisfies the mathematics requirement.

These courses include:

- 22M.1 Basic Algebra I
- 22M.2 Basic Algebra II
- 22M.3 Basic Geometry

Based on a phased schedule keyed to the student's size of first enrollment at The University of Iowa, grades received in these courses will be computed in the grade-point average, but the hours awarded will not be included in hours earned toward graduation.

The following schedule specifies which courses students may be required to complete and whether or not credit earned in these courses will count toward graduation.

Date of first enrollment at The University of Iowa:

Prior to Fall 1985: 22M.1; credit will count toward graduation.

Fall 1985: 22M.1; credit will not count toward graduation.

Fall 1990: 22M.2; 22M.4; credit will not count toward graduation.

Fall 1991: 22M.2; credit will not count toward graduation.

Mathematics requirement also may be satisfied by successful completion of courses more advanced than 22M.2 and 22M.3 in the Division of Mathematical Sciences.

Transfer Courses

Students who have not otherwise fulfilled the mathematics requirement will have met the requirement if they have passed a sequence of college-level mathematics courses at other schools that are comparable to the courses used for this purpose at Iowa. Acceptance of courses will be based on an evaluation of content and level of difficulty. Transfer credit awarded in courses equivalent to 22M.1, 22M.2, and 22M.3 will not count toward graduation according to the following schedule:

Courses equivalent to 22M.1 taken after summer 1965;

Courses equivalent to 22M.2 taken after summer 1966;

Courses equivalent to 22M.3 taken after summer 1967.

Transfer students who receive A.A. degrees from Iowa community colleges participating in the Iowa Community College/Regents Agreement are considered to have fulfilled the mathematics requirement.

Physical Education

All students must complete four semester hours of physical education skills development under the satisfactory/unsatisfactory grading procedure.

NOTE: Because of extensive remodeling of the Field House, the physical education skills requirement was temporarily reduced from four to three semester hours. The reduction applies to all new freshmen and transfer students admitted for summer sessions 1986, first second semester 1986-87, and first semester 1987-88.

Only courses 104.1 and 742.2, offered by the physical education skills program, may be used to satisfy the requirement. Courses under these numbers have activity or sports titles and levels of proficiency. If a student repeats the same course or takes a more elementary one, the registrar will assess a penalty for either duplication or
regulation. In removing incompletes or using the second-grade-only option, the student must complete or retake the same activity or spotted the same level.

Proficiency Examinations
Up to 4 semester hours of ingraded credit or exemption may be awarded for successful completion of comprehensive tests in specific physical education activities or sports. A maximum of 4 semester hours of credit by examination in physical education activities will be counted toward the total required for graduation. Credit from these tests may not be used as elective credit toward a degree.

Transfer Students
Transfer students may satisfy this requirement:
By transferring 4 semester hours of college physical education course work (athletic activities, and so on); or
By achieving junior standing (56 semester hours) prior to admission to The University of Iowa; or
By transferring fewer than 4 semester hours of college physical education and by earning enough credits in physical education at Iowa to make a total of 4 semester hours from all colleges.

Older Students
Students who have passed their twenty-third birthday prior to the first day of school may satisfy this requirement by presenting to the registrar satisfactory evidence of having completed a basic training program in a branch of the armed forces.

Foreign Language
Four semesters of a foreign language are required for the B.A. degree and two semesters for the B.S., B.F.A., B.G.S., and B.M. degree. The requirement may be satisfied by the methods described below.
Foreign languages offered at The University of Iowa to fulfill the requirement include Chinese, Dutch, French, German, Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, and Spanish. In some cases, foreign students may use English to satisfy the foreign language requirement.
High School Courses
Successful completion of four sequential years of study of the world language in high school meets the B.A. degree requirement. Two sequential years in high school meet the B.S., B.F.A., B.G.S., and B.M. degree requirement. Students must complete the fourth year of high school language for the B.A. degree and the second year for the B.S., B.F.A., B.G.S., and B.M. degrees.

College Courses
Successful completion of four sequentia in the same language in college, or the equivalent, meets the B.A. degree requirement. The completion of two sequential semesters in the same language, or the equivalent, meets the B.S., B.F.A., B.G.S., and B.M. degree requirement. Students must complete the fourth semester of college language for the B.A. degree and the second semester for the B.S., B.F.A., B.G.S., and B.M. degrees.

Combinations of High School and College Courses in the Same Foreign Language
One year of high school study in a foreign language is the equivalent of one semester of college work. Successful completion of sequential years of one language in high school followed by sequential semesters of the same language in college meets the requirement. Students must complete the fourth semester of college language in sequence for the B.A. degree and the second semester in sequence for the B.S., B.F.A., B.G.S., and B.M. degrees.

Students may receive credit for college courses that duplicate high school work in a foreign language.

Proficiency Examinations
Satisfactory performance on an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study meets the B.A. degree requirement. Proficiency equivalent to that usually attained after two semesters of college study meets the B.S., B.F.A., B.G.S., and B.M. degree requirement. Academic credit will be given to students who are proficient in a foreign language usually not taught at The University of Iowa also may validate their proficiency.

Sequences of Courses that Satisfy the Foreign Language Requirement

B.A. Degree


Dutch, 15-101 - 130-12 - 130-21 - 130-22

French, 91 - 92 or 91-100, plus 91-102 or 91-105 or 91-102 or 91-105 or 91-106 - 18-56 - 9-106

German, 121 - 121 or 121-123 or 121-13, plus 121-123 or 121-13 or 121-123 or 13-21

Greek, 141 - 142 - 1411 - 1412


Italian, 181 - 182 - 1811 - 1812 or 1810-18-111 - 1812


Portuguese, 38-1 - 38-2 - 38-11 - 38-16 or 38-100 - 38-11 - 38-12

Russian, 41.1 - 41.2 - 41.3 - 41.4


Spanish, 39-1 - 39-25 or 39-26; and/or 39-21 - 39-24 or 39-25

B.S., B.F.A., B.G.S., B.M. Degrees

Chinese, 39-1 - 39-2 or 39-8

Dutch, 130-11 - 130-12

French, 91 - 92 or 91-100

German, 13-11 - 1312 or 13-12 or 13-12 - 13-13

Greek, 141 - 142

Hindi, 39-13 - 39-32

Italian, 181 - 182 or 18-105

Japanese, 39-1 - 39-2 or 39-64

Latin, 201 - 202 or 20-15 or 20-17

Portuguese, 38-1 - 38-2 or 38-100

Russian, 41-1 - 41-2 or 41-2 - 41-100

Sanskrit, 39-21 - 39-22

Spanish, 39-1 - 39-25 or 39-35

Foreign Civilization and Culture

Students must complete one 3- or 4-semester-hour course from the list below. Courses used to satisfy this requirement also may be approved to satisfy, in part, the historical perspectives, humanities, or social sciences requirement.

HIS Western Art and Culture
Before 1840 3.0

HIS Western Art and Culture After 1840 3.0

HIS Islamic Art and Civilization 3.0

HIS Introduction to Asian Art 3.0

HIS Mexican Art, Politics, and Culture of Mexico: 3.0

HIS Mexican Art, Politics, and Culture of Modern Mexico 3.0

HIS Western Art and Culture 3.0

HIS Introduction to Asian Art 3.0

HIS Western Art and Culture After 1840 3.0

HIS Latin American Art 3.0

HIS Introduction to Modern German Literature 3.0

HIS Introduction to Modern German Literature 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0

HIS Cultural History 3.0
20.113 Religion and the Occult in Antiquity 3 s.h.
20.143 Masterpieces of Music 3 s.h.
20.144 Major Themes in Music 3 s.h.
20.150 World Music I 3 s.h.
20.156 World Music II 3 s.h.
20.161 Introduction to Ethnomusicology 3 s.h.
20.400 Art of Dance in Contemporary Society 3 s.h.
22.2 Religion and Society 3 s.h.
22.2 Quest for Human Destiny 3 s.h.
22.10 Introduction to Religious Studies 3 s.h.
32.351 Religious Thieves of the West 3 s.h.
32.197 Uses of the Old Testament in Verse and Drama 3 s.h.
32.111 Religion and Women 3 s.h.
32.164 Religion and the Occult in Antiquity 3 s.h.
33.121 The Good Society 3 s.h.
33.154 Human Nature and the Impact of Science 3 s.h.
33.156 Form and Milieu in the Arts 3 s.h.
33.170 Opera as Drama 3 s.h.
33.30 Contemporary Latin American Narrative 3 s.h.
36.351 Survey of Film 3 s.h.
36.146 European Film History 3 s.h.
36.148 National Cinema 3 s.h.
39.10 Asian Humanities 3 s.h.
39.20 Asian Humanities 3 s.h.
39.50 Non-Western Literary Traditions 3 s.h.
43.1 American Values 3 s.h.
43.10 Major Texts of World Literature I 3 s.h.
43.11 Major Texts of World Literature II 3 s.h.
45.50 Non-Western Literary Traditions 3 s.h.
45.1 Art of the Theatre 3 s.h.
45.10 Greek Drama in Translation 3 s.h.
129.28 Literature of the African Diaspora 3 s.h.
129.50 Introduction to Afro-American Culture 3 s.h.
111-111 Religion and Women 3 s.h.

Natural Sciences

Students must complete at least 7 semester hours from the courses listed below. At least one course must fulfill this requirement, and it must include a laboratory component. Courses with laboratory components are indicated by "(Lab)."

2.1 Introduction to Botany (Lab) 4 s.h.
2.30 Plant Diversity (Lab) 4 s.h.
2.40 Microbiology (Lab) 4 s.h.
4.5 Technology and Society (Lab) 4 s.h.
4.7 General Chemistry I 3 s.h.
4.8 General Chemistry II 3 s.h.
4.13 Principles of Chemistry I 3 s.h.
4.14 Principles of Chemistry II 3 s.h.
4.16 Principles of "Chemistry Lab" I 3 s.h.
4.21 Principles of "Chemistry Lab" II 3 s.h.
4.26 Chemistry for the Health Sciences 3 s.h.
4.27 Human Biology 3 s.h.
4.28 Human Biology (Lab) 3 s.h.
4.112 Ecology and Evolution 3 s.h.
4.125 Introduction to Geology (Lab) 4 s.h.
4.126 Evolution of the Earth (Lab) 4 s.h.
4.127 Earth History and Resources (Lab) 4 s.h.

1224 Introduction to Environmental Geology (Lab) 3 s.h.
29.35 Chemistry and Physics of the Environment 3 s.h.
29.71 General Physics 3 s.h.
29.8 Basic Physics (Lab) 4 s.h.
29.11 College Physics (Lab) 4 s.h.
29.12 College Physics (Lab) 4 s.h.
29.17 Introductory Physics I (Lab) 4 s.h.
29.18 Introductory Physics II (Lab) 4 s.h.
29.50 Modern Astronomy 3 s.h.
29.56 Modern Astronomy 3 s.h.
29.61 General Astronomy (Lab) 4 s.h.
(may be taken for 2 s.h. as a sequel to 29.60)
29.62 General Astronomy (Lab) 4 s.h.
(may be taken for 2 s.h. as a sequel to 29.60)
37.1 Introductory Animal Biology (Lab) 4 s.h.
37.3 Principles of Animal Behavior (Lab) 5 s.h.
37.40 Biology of the Brain 3 s.h.
37.49 Introduction to Animal and Human Behavior 3 s.h.
37.61 Human Genetics 3 s.h.
37.62 Genetics and Evolution 3 s.h.
44.43 Introduction to Physical Geology (Lab) 3 s.h.
917 Fundamentals of Science (Lab) 4 s.h.
113.13 Human Origins 3 s.h.

Quantitative or Formal Reasoning

The requirement may be satisfied by completing any one of the courses listed below, or completing a more advanced course that has one of the listed courses as a prerequisite.

77.25 Elementary Statistics and Information 3 s.h.
278M/278U Finite Mathematics 4 s.h.
278N Brief Calculus 4 s.h.
28.150 Multivariable Calculus for the Biological Sciences 3 s.h.
28.161 Calculus for the Biological Sciences 3 s.h.
28.21 Quantitative Methods I 4 s.h.
28.22 Quantitative Methods II 3 s.h.
28.23 Calculus I 4 s.h.
28.24 Calculus II 4 s.h.
28.25 Acceleration Calculus I 4 s.h.
28.26 Acceleration Calculus II 4 s.h.
28.35 Statistics and Probability 3 s.h.
28.352 Quantitative Methods II 3 s.h.
28.252 Elementary Number Theory and Analysis 3 s.h.
26.36 Principles of Reasoning 3 s.h.
26.37 Theory and Practice of Argument 3 s.h.
101.3 Language and Formal Reasoning 3 s.h.

This requirement should be met by the end of the student's second year in residence or during the first 40 semester hours of study at The University of Iowa. Students normally should have satisfied the mathematics requirement before beginning to meet this one.

Social Sciences

Students must complete a minimum of 6 semester hours from the courses listed below:

31.5 Introduction to Speech and Hearing Processors and Disorders 3 s.h.
60.1 Principles of Microeconomics (offered for 3 s.h. summer session only) 4 s.h.
60.2 Principles of Macroeconomics (offered for 3 s.h. summer session only) 4 s.h.
79.120 Introduction to the Process of Education 3 s.h.
124.101 Introduction to American American Society 3 s.h.
130.101 Scientific Foundations of Communication 3 s.h.
31.1 Introduction to American Politics 3 s.h.
32.10 Introduction to Politics 3 s.h.
32.30 Introduction to Political Thought and Political Action 3 s.h.
32.40 Introduction to Comparative Politics 3 s.h.
32.50 Introduction to Political Science 3 s.h.
32.60 Introduction to World Politics 3 s.h.
32.110 The American Political System 3 s.h.
31.1 Elementary Psychology 3 s.h.
31.3 General Psychology (either 31.1 or 31.3 may be used) 3 s.h.
31.13 Introduction to Clinical Psychology 3 s.h.
31.14 Introduction to Child Psychology 3 s.h.
31.16 Introduction to Mental Health 3 s.h.
31.17 Introduction to Comparative Psychology 3 s.h.
32.60 Introduction to Sociology 3 s.h.
32.63 Introduction to Sociology: Problems 3 s.h.
32.68 Introduction to Media and Mass Society 3 s.h.
32.69 Communication Theory in Everyday Life 3 s.h.
44.101 Anthropology 3 s.h.
44.102 Introduction to Human Geography 4 s.h.
44.106 The Environment to Social Geography 3 s.h.
44.109 Contemporary Environmental Issues 3 s.h.
44.109 Introduction to Economics 3 s.h.
47.1 Global Interdependence and Human Survival 3 s.h.
110.1 Language and Society 3 s.h.
110.3 Introduction to the Study of Culture and Society 3 s.h.
110.10 Anthropology and Contemporary World Problems 3 s.h.
110.11 Language and Human Behavior 1 s.h.
110.119 Urban Anthropology 3 s.h.
124.101 Introduction to American Society 3 s.h.
General Education Restrictions and Waivers

Pass-Nongrade: No course used to satisfy any of the General Education Requirements may be taken pass-nongrade.

No More Than Three Courses from One Department: Students may use no more than three courses offered by any one department to satisfy the historical perspectives and the humanities requirements together.

Courses from the Major Department: No course from a student's major department may be used to satisfy the general education requirements except the mathematics requirement, the foreign language requirement, the physical education requirement, or the foreign civilization and culture requirement.

Students who have fulfilled the requirements for a double major are exempt from this restriction.

Departmental Waivers of General Education Requirements: Each department at the college may waive up to 4 semester hours of general education requirements for its B.A. students and up to 7 semester hours for its B.S., B.F.A., and B.M. students in the area closest to or most relevant to its program. A current list of all approved waivers is available in the Liberal Arts Office of Academic Programs.

Placement and Exemption Examinations for General Education

Satisfactory performance on tests administered at the college may lead to full or partial exemption from the rhetoric, mathematics, or foreign language requirement (if the student is not awarded). Exemption and up to 4 semester hours of general education credits may be awarded for satisfactory performance on standardized tests in physical education skills. Exemption and/or academic credit may be awarded for satisfactory scores on examinations administered by Advanced Placement Program (AP) and the College-Level Examination Program (CLEP) in the following general education areas: rhetoric, foreign language, historical perspectives, humanities, natural sciences, quantitative or formal reasoning, and social sciences. For specific information about the application of credit for AP and CLEP, contact the Liberal Arts Office of Academic Programs or the Examination and Placement Office.

General Education Requirements and Transfer Students

Transfer Students Without Degrees

Transfer students who have taken courses elsewhere that are similar to those approved for general education at Iowa may count these courses toward the general education requirements. Acceptance of these courses will be shown on the student's admission statement. If transfer students bring to Iowa fewer than enough hours to meet a general education requirement, they may use only approved courses to complete the remainder of the requirement.

Transfer Students with A.A. Degrees

Students who have earned A.A. degrees from Iowa community colleges participating in the Iowa Community College/ Regents Articulation Agreement will be considered to have met all the General Education Requirements except foreign language. The student's program of study for which the A.A. degree was awarded must include a minimum of 60 semester hours of credit acceptable for transfer, the completion of an agreed-upon group of courses at the community college, and a grade-point average of at least 2.0. A yearly review is conducted to assure whether students are meeting the stipulations of this agreement.

Requirements for the Major

Specific requirements for majors offered in the College of Liberal Arts are listed in the departmental sections of the Catalog. Students should consult with their advisors to outline plans for a major.

Restrictions

Courses that are to be applied toward the major may not be taken pass-nongrade. Courses required for the major in cognate or related areas may be taken pass-nongrade, if available, at the discretion of the major department.

No more than 30 semester hours of credit may be earned in one department of study and applied toward a B.A. or B.S. degree from the College of Liberal Arts. No more than 62 semester hours in one department may be applied toward a B.F.A. Special considerations for double majors are described below.

A maximum of 16 semester hours of credit by examination may be awarded in the major field.

Double Majors

Students may meet the major requirements in more than one department and, if the departments award the same degree, the student may earn a single bachelor's degree with two or more majors. Double majors may not be earned unless both departments or programs are in the College of Liberal Arts.

Students who have fulfilled the requirements for a double major are exempt from the restriction that no course from the student's major department may be used to satisfy the General Education Requirements.

When a single department offers a degree in more than one subject area (such as physics and astronomy or French and Portuguese), students may earn a double major, a minor and a minor, or two minors (involving these degree programs). All students must earn a minimum of 56 semester hours in courses taken outside that department.

Students seeking double majors in the programs within the Division of Mathematical Sciences (computer science, mathematical sciences, and statistics and actuarial science) must earn a minimum of 56 semester hours in courses taken outside the College of Education.

Students seeking double majors in the areas of early childhood, elementary, health occupations, and special education must earn a minimum of 56 semester hours in courses taken outside the College of Education.

Minors

Liberal Arts Minors

Students graduating from the College of Liberal Arts may earn a minor in minors in any degree granting program in the college outside of their major or in another college of the University. The minor may relate directly to the major or may allow a student to follow an entirely different and separate interest from the major.

Requirements

The requirements outlined below are the minimum requirements for the College of Liberal Arts. Departmental requirements may be more specific and may include recommended courses, a greater number of semester hours, and prerequisites. Requirements for specific minors are described in the departmental sections of the Catalog. For departments that do not specify the requirements for a minor, students should consult with the department or the Liberal Arts Office of Academic Programs.

A minimum of 15 semester hours must be taken in the minor area.

At least 12 of the 15 semester hours must be taken at the University of Iowa in advanced courses acceptable to the academic unit granting the minor.

Transfer credit is not accepted toward the 15 semester hours of advanced work. Students should check with the minor department to identify acceptable courses.

A student must have a grade-point average of at least 2.0 in all work attempted in the minor department.

No course accepted toward the minor may be taken pass-nongrade.
Guidelines

Students must inform the Registrar’s Office of their desire to have a minor listed on their transcript at the time of applying for a degree, if the student has completed the requirements for a minor, a notation will be placed on the permanent record.

Each academic unit determines which of its advanced courses acceptable for a minor. Students seeking information about acceptable courses should contact the minor departmental office.

Some programs in the college that do not offer a bachelor’s degree offer minors. For example, minors may be earned in aging studies, African-American world studies, global studies, Latino American studies, or women’s studies.

Students who already have earned a bachelor’s degree from The University of Iowa and who have not entered a graduate or professional program may complete the requirements for a minor and apply to the registrar to have a notation regarding the minor placed on the permanent record.

Restrictions

Students in the Bachelor of General Studies or Bachelor of Liberal Studies degree programs are not eligible to earn minors, since these are programs without majors.

The degree-granting programs in dental hygiene, early childhood education, elementary education, health occupations education, social studies, and special education do not offer minors.

Students who earn a bachelor’s degree in interdepartmental programs—such as ancient civilization or literature, science, and the arts—may not earn minors in any subject within the major degree field.

Liberal Arts Minors for Students in Business, Engineering, and Nursing

Undergraduate students in the colleges of Business Administration, Engineering, and Nursing may earn liberal arts minors by satisfying College of Liberal Arts requirements for minors. Engineering students interested in minors in physics, chemistry, or mathematics may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas. (For other restrictions, see appropriate college sections of the Catalog.)

Minor in Business Administration

Students in the College of Liberal Arts may elect a minor in business administration. Students must complete the general admission requirements of the College of Business Administration to be considered for admission to the business minor program (see the “College of Business Administration” section of the Catalog). The courses below listed will satisfy all requirements for the minor.

A computer programming course
- Business calculus (22M/17, 22M/25, or 22M/35) 3 s.h.
- Statistics (22S/225 or 22S/225) 3 s.h.
- 6F1 Principles of Microeconomics 3 s.h.
- 6F2 Principles of Macroeconomics 3 s.h.
- 6F1 Introduction to Financial Accounting 3 s.h.
- 6F2 Managerial Cost Accounting 3 s.h.
- 4F10 Introduction to Marketing 3 s.h.
- 4F20 Introductory Financial Management 3 s.h.
- 4F10 Administrative Management 3 s.h.
- 4L17 Introduction to Law 3 s.h.
- *Must be taken in junior or senior year

At least 15 semester hours of courses taken for the minor must be completed at The University of Iowa. A grade-point average of at least 2.0 is required in all courses taken for the minor and in all of those courses taken at Iowa.

Interested students should complete or register for the first seven courses listed above before applying for admission to the business minor program. The first seven courses may be used as electives or credit for satisfying College of Liberal Arts requirements in some instances. Students complete the remaining courses following their admission to the business minor program. Admission to the program is limited, and meeting minimum standards does not ensure admission.

Minors in Education

Liberal arts students who are pursuing the B.A. or B.S. degree may earn minors in the College of Education. The four available minors are educational psychology, general education, human relations, and science education. For specific requirements, call or visit the Office of Student Services at the College of Education.

Bachelor of General Studies

The Bachelor of General Studies (B.G.S.) degree is designed to give students maximum flexibility in planning their academic programs. There are no departmental major requirements for this degree, instead, students plan their own areas of concentration. Since this is an interdisciplinary program without a major, B.G.S. students may not earn minors.

Many B.G.S. candidates structure programs similar to standard programs, but replace some of the departmental major requirements with courses more relevant to their particular goals. Other B.G.S. students have developed programs that overlap departments and for which no majors exist.

A few examples of such interdisciplinary possibilities are world order studies, environmental studies, psychology, urban studies, public relations, and medieval culture. Some B.G.S. students develop double areas of concentration, for example, political science and history or education and psychology.

New requirements for the B.G.S. degree were approved by the College of Liberal Arts Faculty Assembly in May 1985 and are being implemented according to the following guidelines. B.G.S. candidates who enrolled at The University of Iowa for the first time after July 1985 must complete the new degree requirements.

Students who enrolled at The University of Iowa prior to fall semester 1985 may choose the old or the new B.G.S. requirements, but not both. If students select the new B.G.S. requirements, they must graduate under those requirements. After May 1990, students may not graduate under the old B.G.S. requirements, regardless of the date of their first enrollment.

New B.G.S. Requirements

Completion of the General Education Requirements, including two semesters of a foreign language.

Completion at The University of Iowa of at least 36 semester hours of advanced course work. No more than 18 semester hours of advanced course work from any one department will be counted toward this requirement. Advanced courses typically are those numbered 100 and above. However, at the initiation of sponsoring departments and with the approval of the Liberal Arts Office of Academic Programs, courses below the 100 number but taught at an advanced level may be used to satisfy this requirement.

Courses taken to satisfy the General Education Requirements may not be counted toward completion of the advanced course work requirement.

Achievement of a grade-point average of at least 2.0 in all college work attempted, all work undertaken at The University of Iowa, and all advanced courses attempted.

No more than 60 semester hours of credit in one academic department may count toward the 124 semester hours required for graduation.
Students completing a B.G.S. degree may earn no more than 30 semester hours of credit in all other colleges of the University while enrolled in the College of Liberal Arts. Undergraduate course offerings by the College of Education are an exception to this rule.

At other College of Liberal Arts policies regarding total earned hours, residence, pass-fail, academic standards, and so forth, apply to B.G.S. students.

Old B.G.S. Requirements

Completion of at least 40 semester hours of courses numbered 100 and above at The University of Iowa, no more than 20 semester hours of this upper-level course work from any one department will be counted toward this requirement.

Achievement of a grade-point average of at least 2.0 in all college work attempted, and all work undertaken at The University of Iowa, and all 100-level courses attempted.

No more than 60 semester hours of credit in one academic department may count toward the 40 semester hour's required for graduation.

Students completing a B.G.S. degree may earn no more than 30 semester hours in credit taken in all other colleges of the University while enrolled in the College of Liberal Arts. Undergraduate courses offered by the College of Education are an exception to this rule.

All other College of Liberal Arts policies regarding total earned hours, residence, pass-fail, academic standards, and so forth, apply to B.G.S. students.

Teaching Certification with the B.G.S.

A B.G.S. student may earn teaching certification in early childhood, elementary, secondary, or special education in the following manner:

By meeting either the new or the old requirements for the B.G.S. degree given above.

By meeting the requirements for a particular teaching area, this usually involves fulfilling requirements in some field, for example, elementary education, English, social studies education.

By meeting certification requirements in the selected certification program; this includes methods courses and student teaching.

Students seeking teaching certification probably will take more hours in a single department than allowed under B.G.S. rules. Some courses offered in education and psychology are cross listed, and this provision may be used to keep course totals within the maximum of 40 semester hours in any one department.

For Further Information

For further information about the Bachelor of General Studies program, call or visit the Liberal Arts Office at Academic Programs.

Bachelor of Liberal Studies

Offered by each of the three Iowa Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa), the B.L.S. program is designed to serve adults who cannot attend college full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and is accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper Extension Program courses; extension courses, including those with distance-learning formats; and regular on-campus courses. Students may also take proficiency examinations.

While the B.L.S. is awarded by the College of Liberal Arts, the program is administered by the Division of Continuing Education.

Admission to the B.L.S. Program

Students wishing to graduate from The University of Iowa must apply for admission to the B.L.S. program at the Admissions Office.

To be eligible for admission to the program, the student must have earned either:

- An A.A. degree from an accredited two-year college, with a 2.6 grade-point average, or
- At least 62 semester hours of collegiate work acceptable for credit toward graduation, with a 2.0 grade-point average.

B.L.S. Requirements

Of the 124 semester hours of credit required for the degree, at least 45 must be earned in four-year colleges in courses defined as upper-level (in the College of Liberal Arts, courses numbered 100 and above). 45 must be completed in courses offered by the Iowa Regents universities, and 30 must be earned after admission to the B.L.S. program in the specific Regents university that will grant the degree.

The B.L.S. candidate must meet the General Education Requirements of the Regents university from which the candidate expects to receive the degree. At The University of Iowa, B.L.S. candidates are required to complete all the General Education Requirements except foreign language and physical education. Students who have a valid A.S. degree from an accredited two-year college in Iowa may already have met these requirements.

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours (or 18 quarter hours) of credit in each of three of the following distribution areas:

- Humanities
- Communications and arts
- Natural sciences and mathematical disciplines
- Social sciences
- Professional fields, as approved by the degree-granting institution

Of these 36 semester hours, 24 must be in upper-level courses, and at least 10 semester hours of upper-level credit in each distribution area. Credit cannot be applied to the General Education Requirements may not be used to meet the distribution area requirements.

Graduation requires a minimum grade-point average of 2.0 in all course work applied toward the degree, in all course work completed after admission to the program, and in all upper-level course work.

For further information, call or visit the Admissions Office or the Center for Credit Programs.

Registration and Grading

Registration Procedures

Late Registration

Students will not be permitted to register after the third week of the semester or the first one and one-half weeks of the summer session.
Courses Listed in More Than One Department
For identical courses listed in more than one department, students may register under whichever course number they prefer.

Courses Open to Freshmen
Departments are required to list courses open to freshmen in the Schedule of Courses for current listings.

Maximum Schedule
The typical schedule is 15-16 semester hours in a regular semester, 16 semester hours in a summer session. The maximum permitted registration is 20 semester hours in a regular semester, 16 semester hours in a summer session. Students may obtain permission in the Liberal Arts Office of Academic Programs to register for more hours than the maximum allowed.

Changes in Registration
Changes in registration become effective on the date the completed term is submitted to the Registration Center.

Adding and Dropping Courses
Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with the approval of the adviser and instructor. Courses may be dropped at any time during the first ten weeks of the semester or first five weeks of the summer sessions with the approval of the adviser and instructor. Special courses that meet on a different schedule or start or end at times other than the beginning and end of the semester, and are not listed in the Schedule of Courses, may be added with the necessary signatures at any time during the first one-third of the duration of the course and dropped at any time during the first two-thirds of the duration of the course. Similar proportional deadlines will operate during the usual eight-week summer session and for other special session courses.

A dean's approval is required for all adds after the third week of the semester (first one and one-half weeks of the summer session) and for all drops after the tenth week (fifth week of the summer session). Approval is granted only in extraordinary circumstances. Students should request a dean's signature in the Liberal Arts Office of Academic Programs.

Undergraduate students in the College of Liberal Arts are assigned a mark of W (Withdrawn) for any course in any college dropped after the third week.

Undergraduates in other colleges receive a W as a marking grade in the College of Liberal Arts after the third week, including courses numbered with the College of Education prefix 7 and Science Education Program prefix 97. A mark of W is assigned for all courses dropped after the first one and one-half weeks of the summer session.

For courses that begin or end at times other than the beginning and end of the semester, students may drop these courses any time within the first one-third of the duration of the course without being assigned a mark of W. 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.

Dropping for Nonattendance
In order to prevent overenrollment in crowded classes, instructors may drop from their classes any students who have not attended any class session during the first eight calendar days of the semester (four calendar days of the summer session), unless the students have offered reasons acceptable to the instructor prior to the eighth calendar day of the course for beginning the course late. This provision is for the benefit of those students who otherwise would be unable to enroll in certain crowded classes and should not be used in cases where these circumstances do not exist. Students should not assume that they will be dropped automatically from a course for nonattendance. These actions are made without the assignment of a mark of W.

Changes in Variable and Arranged Credit
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 adviser, and the dean at any time prior to the end of the tenth week of the semester (fifth week of the summer session).

Other Changes in Original Registration
Changes involving pass-no pass registration or audit registration (zero credit) may be made only during the first three weeks of the semester (first one and one-half weeks of the summer session) and only with the approval of the adviser and instructor.

Students' Responsibility
It is the responsibility of the student to see that the change in registration form is approved by the adviser, instructor, or dean (as needed) and delivered to the Registration Center.

Changes in registration become effective on the date the completed term is submitted to the Registration Center.

Withdrawal of Registration
Students may withdraw registrations without academic penalty at any time prior to the end of the twelfth week of the semester or sixth week of the summer session. Permission is given for the semester or session. Withdrawal after the deadline results in the automatic assignment of an F in each course. Students who withdraw registration may not be reenrolled after the deadline for that session.

Application for Degree
Students who want to be considered for graduation must file an application for a degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who wish to have a minor listed on their transcript must inform the registrar at this time, so that completion of the requirements for the minor can be verified.

Graduation Analysis
Students may obtain a written graduation analysis by applying at the Office of the Registrar. A graduation analysis evaluates the progress a student is making toward a particular degree by checking total hours earned, grade point averages, hours in residence, and courses completed to satisfy the General Education Requirements and requirements in the major.

The analysis may be reissued any time after completion of the sophomore year. Students are limited to one analysis.

Duplication
Duplication occurs when students take the same course more than once or take a course that duplicates the content of a satisfactorily completed course. Duplication is not acceptable to the registrar at the time of graduation analysis. Hours earned by duplication do not count toward the total number of hours needed for graduation. Grades for both courses, however, are used in computing the grade-point average.

Regression
Regression occurs when students take a more elementary course after having completed a more advanced or higher level course in the same subject. At the time of graduation analysis, the registrar determines whether regression has occurred. Hours earned by regression do not count toward the total number of hours needed for graduation.

Grading Procedures

Marking System
The following marking system is used in the college.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade point for each s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.75</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
</tr>
<tr>
<td>N</td>
<td>0.00</td>
</tr>
<tr>
<td>I</td>
<td>0.00</td>
</tr>
</tbody>
</table>

In incomplete grades counted in computing GPA.

W- Withdrawn
Not used in computing GPA

P- Pass
Not used in computing GPA

N-No Pass
Not used in computing GPA

S- No grade
Not used in computing GPA (no grade submitted)

R- Registered
Not used in computing GPA
Grade-Point Average

The cumulative grade-point average is computed by (a) multiplying the semester hours in each course by the appropriate grade points; (b) totaling the grade points earned to date; and (c) dividing the sum in (b) by the number of semester hours excluding courses in which grades of I, W, P, N, S, S, or R have been given. Grades of F are included in hours attempted and are used in computing the grade-point average.

Pass-NoPass

Students in the College of Liberal Arts have the option of taking elective courses on a pass-no-pass basis. The mark of P may be used in lieu of grades of A, B, and C for courses authorized by the College. Students registered in a P-N basis who receive grades of D or F will have N entered on their records. Liberal arts students taking courses in other colleges of the University will be subject to the grading policies of those colleges. Students from other colleges taking courses in the College of Liberal Arts will be subject to liberal arts grading policies.

Auditing Courses

Students in the College of Liberal Arts may register as auditors if approval is granted by the advisor and the course instructor. In addition to obtaining the signatures of the advisor and instructor, students must register for zero credit in the course to be audited.

Satisfactory-Fail

Certain courses in the College of Liberal Arts are offered on a satisfactory-fail basis, and are so designated in the Schedule of Courses. All students registered for such courses receive either S or F. Special forms are not necessary to register for S-F courses, since all students enrolled in such courses will automatically receive either an S or an F. The grade of S will not be used in computing the grade-point averages, but the grade of F will be used. The grade of F does not count as semester hours earned for graduation.

Credit with the grade of S may be applied toward the General Education Requirements or toward requirements in the major or minor.

Not more than 16 semester hours with the grade of S will be accepted toward the bachelor’s degree.

Second-Grade-Only Option

If obvious regression is involved, students may repeat courses pursued at the University of Iowa and have only the grade and credit of the second registration used in calculating total hours earned as well as University of Iowa cumulative and total cumulative grade-point averages. Under the provisions of this option, the Office of the Registrar will mark the permanent record to show that a particular course has been repeated. Both grades will remain on the permanent record, but only the second one will be used to calculate the grade-point averages and hours earned.

Students who wish to use the provisions of this option should register in the usual manner for the course they decide to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one-and-one-half weeks of the summer session). Visit the Liberal Arts Office of Academic Programs to check their eligibility and to complete the proper forms. Unless the grade is completed, both grades will continue to be computed in the grade-point averages.

Restrictions

The second-grade-only option may be used only once per course.

The provision applies to a minimum of 16 semester hours.

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-no-pass the first time, it may be taken pass-no-pass or for a grade the second time.

The second-grade-only option may not be used if the first grade was assigned as a result of disciplinary action.

Incomplete (I)

A grade of I may be reported only if the uninstructed part of the student’s work (other than in research, thesis, or independent study) is small, the work is uninstructed for reasons acceptable to the instructor, and the student’s standing in the course is satisfactory. Courses may not be repeated to remove incompletes. Incomplete grades must be removed by completing the uninstructed part of the work.

Incompletes (I)

Failure to remove the incomplete during the next session for which the student is registered in the course or from the student’s permanent record may result in the student being assigned the I. All special reports to the registrar removing incompletes must reach the registrar on or before the deadline for submitting final grades for the next session in which the student is registered. No extensions to prevent the assignment of an F will be made. Instructors, if they wish, may allow students to finish incompletes at any time subsequent to the deadline. Even if the incomplete has been changed to an F in such cases, special report to the registrar must be sent for approval to the dean of the college since the instructor would be changing a grade.

No Report (R)

If the (zero) designation appearing on a student’s permanent record must be changed to a valid grade according to the university’s policy, the signature of the instructor will be required. Failure to remove the R by the specified deadline results in the assignment of an F.

Midsemester Reports

At midsemester, instructors must report grades for all students whose work is below C. These reports are distributed to advisors
and to individual students, but delinquent grades are not recorded on the permanent record.

Academic Probation and Dismissal

Students in the College of liberal arts are expected to maintain satisfactory academic standards and to demonstrate reasonable progress toward a degree. Probation serves as a warning that students will not graduate until their academic performance improves.

Probation

Students who fail to attain the following minimum University of Iowa or total cumulative grade-point averages for their class are placed (or continued) on probation:

Freshmen (9-27 semester hours): 1.60
 Sophomores (28-52 semester hours): 1.75
 Juniors (53-86 semester hours): 1.90
 Seniors (90 or more semester hours): 2.0

Special students and extension students: 2.0

Students on probation will be restored to good standing if their University of Iowa and total cumulative grade-point averages equal or exceed the grade-point averages designated above. Actions to change probationary status normally are taken at the end of a semester or session.

The pass-fail (P-N) grading option may not be used by students in academic probation.

Entering students, both freshmen and transfer students, may be admitted on probation if they fall to meet the minimum stated standards for admission (see "Admission Requirements").

Dismissal

Students who are on academic probation for two consecutive semesters or sessions are subject to dismissal from the college for unsatisfactory scholarship. Freshmen, admitted unconditionally (not on probation) are subject to dismissal after one semester on probation. Very poor academic work in any semester, however, may result in dismissal at the close of that semester. Under special conditions, students may be granted an additional semester on probation.

Readmission

Students dismissed for unsatisfactory scholarship for the first time will not be permitted to register again for a period of one year. Students dismissed a second time will not be permitted to register for at least two years. Requests for readmission must be in writing and should be addressed to the associate dean of academic programs, 116 Schaeffer Hall. Students who are permitted to register after the specified interval following a dismissal will be registered on probation.

Notification and Records

Students placed on probation, continued on probation, or dismissed from the college will be notified in writing of these actions by the associate dean of academic programs. The notation "on academic probation" will be placed on the permanent record of those students who have been placed or continued on probation. Students admitted on probation will have the notation "admitted on probation" entered on their permanent record. "Not permitted to register" will be entered on the records of those students who have been deselected from the college, and the notation "not to be removed until permission for readmission has been granted.

Attendance, Final Examinations, and Student Conduct

Class Attendance

Individual faculty members or course supervisors determine the policy regarding class attendance for their own courses; except that students are permitted to make up examinations or other required work missed due to illness or participation in University-sponsored activities that necessitate absence from class. Students are required to observe the regulations as announced for the course. Individual instructors may assign extra work, lower grades, or recommend the associate dean of academic programs that the student's registration for the course be dropped if absences are excessive.

Students are expected to attend classes regularly. It is suggested that instructors keep reasonably adequate attendance records, especially in courses in which freshmen are enrolled. When an instructor determines that a student has been excessively absent, that is, with each absence endangering satisfactory academic progress, the instructor may call or send a written request to the liberal arts office of Academic Programs for investigation and action.

In an effort to be absent from class to participate in any regularly scheduled University event, members of athletic teams, the marching band, and other recognized University groups are expected to present to each instructor prior to each absence a written statement signed by a responsible official specifying exactly the dates and times it is necessary to miss class.

Students who have been absent because of illness are expected to present evidence that they have been ill. Regular makeup finals for this purpose are available in each departmental office and in the Liberal Arts Office of Academic Programs. Students should not be asked to obtain excuses from the Student Health Service unless otherwise instructed.

Commencement Attendance

Attendance at University commencements is optional. Credits for degrees should inform the Registrar whether or not they expect to be present when they are scheduled to receive their degrees.

Final Examinations

A suitable period for the administration of examinations is set aside at the end of each semester, during which time no classes are held. With the exception of any changes authorized by the associate dean of academic programs, all final examinations must be given according to the schedule as announced in the Schedule of Classes. During the summer session there is no designated final exam period. Final exams are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

For a more complete discussion of policies governing final exams see the college's Classroom Manual.

Student Conduct

Any offense against good order committed by a student in a classroom or a laboratory may be dealt with summarily by the instructor or referred to the dean of student services. The instructor should report in writing any disciplinary action undertaken against a student to the dean of student services.

Academic Misconduct

Reporting of Plagiarism and Cheating

All cases of plagiarism and cheating in the College of Liberal arts should be reported for action to the Liberal Arts Office of Academic Programs through departmental channels with a statement of all necessary facts. The department and the instructor concerned also may submit recommendations in each case for appropriate disciplinary action.

Disciplinary Action

Individual instructors may reduce the student's grades, including the assignment of the grade of F in the course. A written report of this action should always be kept.
to the Liberal Arts Office of Academic Programs.

The associate dean of academic programs, or the committee on student academic conduct, may impose the suspension or recommend the imposition of any additional hours or the bachelor's degree, suspension from the college, or recommendation of expulsion from the University.

Recognition for Academic Achievement

Dean's List

Liberal arts students who achieve grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work and who have no hours of I or S are recognized by inclusion on the Dean's List for that semester.

Honors Program

The College of Liberal Arts Honors Program offers special academic and extra-curricular opportunities to outstanding students. Freshmen and sophomores may take advantage of special honors sections that are often in some general education courses. At the junior and senior level, most departments offer honors seminars, independent research, and the opportunity to pursue honors projects under the supervision or guidance of a faculty member. Successful completion of a senior honors project leads to a baccalaureate degree "with honors" in the major (see "Graduation Honors" below).

The Shambaugh House Honors Center is a meeting place and study center for students in the honors program. It houses a reference library, study lounges, and computer terminals. Each year the Associated Iowa Honors Students plan a variety of activities—recreational, social, cultural, and academic. Entering students with strong academic records are invited to join the honors program, but any student whose grade-point average meets the required minimum (3.2) may join at any time. For further information, contact the Honors Program, Shambaugh House Honors Center.

Graduation Honors

High scholastic achievement is recognized upon graduation in two ways: graduation with distinction based upon grades only; and graduation with honors in a particular field, based on both grades and the cumulative quality of their academic achievement by the college and the major department.

To be eligible for either form of recognition, students must complete the final 60 semester hours in residence at The University of Iowa, of which at least 45 semester hours must have been completed prior to the student's final registration.

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college 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 highest 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 prior to the final registration.

Graduation with Honors

The director of the College of Liberal Arts Honors Program certifies to the dean of the college the names of graduating students eligible to graduate "with honors." To be eligible, students must be recommended by their major department and be approved by the Honors Council and the dean of the college.

Approval Requirements

To qualify for admission to the College of Liberal Arts, applicants must meet the minimum academic requirements set forth in College and University regulations. The University of Iowa requires all freshmen and undergraduate transfer students to complete a Form A test of college admission (see "Admission Requirements," below) and have their scores reported to the University before they register for classes. These examinations are used as a criterion for admission, for placement purposes, for advising, and for awarding University-administered scholarships and loans.

Entering Freshmen

Applicants seeking admission as entering freshmen must have the high school from which they graduated provide a certificate of high school credits, including a complete statement of high school record, class rank, scores on standardized tests, and certification of graduation. Applicants may be admitted conditionally after they have completed the junior year in high school, but admission is not final until receipt of the final transcript and certification of high school graduation.

Applicants who maintain a "C" average (2.0 in a four-point system) in all college work attempted, and who do not meet this standard may be permitted to take entrance examinations. Students who successfully complete the examinations may be admitted with probation.

Graduates of accredited high schools in other states are expected to meet higher standards than the minimum requirements for graduation for Iowa high schools. The options for admission by probation or trial enrollment may not be open to these students. Nonresident students must be in the upper 30 percent of their graduating class or must have SAT scores of 500 or above for automatic admission.

Graduates of nonapproved high schools must submit all data required above, and take examinations that demonstrate their general competence to do successful college work.

Graduates who do not meet the college's requirements must submit all data required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Transfer Students

Students from Accredited Colleges and Universities

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of the Report of Credit Given by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers is followed for schools not regionally accredited.

Applicants must submit an official transcript bearing the original seal and signature of the official in charge of records from each college or university they have previously attended. Applicants also must submit high school transcripts, scores on standardized tests, and any other records or letters the College of Liberal Arts may require to support their applications for admission.

Transfer applicants are expected to have maintained a "C" average (2.0 in a four-point system) for all college work attempted, and must not be under suspension from the last college attended. Transfer applicants who are not Iowa residents are expected to have maintained a 2.5 average. Applicants who do not meet this standard may be permitted to take entrance examinations.

Applicants who successfully complete the examinations may be admitted with probation.
In general, transfer applicants under academic suspension from the last college attended are not considered for admission during the period of suspension, or, if suspended for an indefinite period, are not considered until six months have passed since the last date of attendance. When eligible for consideration, these applicants are not given special (or any) consideration on the basis of their performance on the entrance examinations.

Transfer applicants under disciplinary suspension are not considered for admission until a clearance and a statement of the reason for suspension from the previous college are filed. When it becomes proper to consider an application from a student under suspension, the college must take into account the previous suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Students from Nonaccredited Colleges

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college or may require the applicant to make a provisional basis and provide a means for the validation of some or all of the credit. The validation period is not less than one semester and ordinarily is a full academic year. The college specifies to the student the terms of the validation process at the time of provisional admission. Students from nonaccredited colleges are considered on their merits, and admission or rejection is at the discretion of the admissions office.

Foreign Students

Foreign students (those who are or will be in the United States on a nonimmigrant status), whether U.S. high school graduates or not, must be able to meet higher standards for admission (as are nonimmigrant U.S. students) than the minimum requirements outlined for a resident or nonresident student. Full-time applicants whose native or official language is not English must provide a score report from the Test of English as a Foreign Language (TOEFL) before admission is granted. The Admissions Office may require other tests or criteria for judgment of English language proficiency for admission purposes. Students admitted with a TOEFL score of 550 or higher are considered eligible for English as a foreign language programs. Applicants with a TOEFL score below 550 are required to take the English proficiency examination conducted by the linguistics department. Undergraduate applicants with TOEFL scores below 550 may be admitted to the University conditionally. The provisional admission is made final only after the student completes any English as a foreign language (ESL) courses recommended as a result of the linguistics department’s proficiency examination.

Foreign undergraduate students are subject to the same rheotric requirement as U.S. students. Unless they have fulfilled the rhetoric requirement by earning at least an A.A. degree from an Iowa community college participating in the Iowa Community College Articulation Agreement, foreign undergraduates whose TOEFL scores are above 550 must enroll in rhetoric.

Like foreign applicants, permanent resident (green card) aliens who are non-English-speaking countries may be required to submit a TOEFL result. The linguistics department offers six ESL courses for students who need to improve their English proficiency.

Special Students

Students may be admitted to the college as nondegree candidates. These students are classified as special students and may enroll in courses for personal enrichment, to prepare for admission to professional or graduate college, or to complete a specified technological certificate program. Students enrolled in courses as special students are subject to the rules of the college for academic probation and dismissal. Courses taken by special students may not be used to satisfy the residence requirement for a baccalaureate degree from the College of Liberal Arts.

Credit for Military Service

The admission office is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Education’s Guide to the Evaluation of Experiences in the Armed Forces, with the understanding that any inclusions between such recommendations and the standards of the College of Liberal Arts will be referred to the Liberal Arts Office of Academic Programs. Full credit for military service might be awarded for the corresponding credit courses. A complete list of credit for appropriate circumstances.

Credit by Examination

A maximum of 32 semester hours of credit by examination from all approved sources is accepted toward the 124 semester hours required for graduation. Credit by examination may be used as elective credit or it may be applied toward the General Education Requirements or requirements in the major or minor.

Precordiant and Exemption Examinations for General Education

If a partial exemption from the requirements in rhetoric, mathematics, physical education, or foreign language may be awarded for satisfactory performance on exams administered at the University of Iowa. In addition, exemption and academic credit may be awarded in most general education areas for satisfactory scores on examinations administered by the Advanced Placement Program (APP) or the College-Level Examination Program (CLEP). See below.

Credit by Examination in the Major

Departments may administer examinations covering required courses or areas of instruction for the major and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 16 semester hours. Credit toward graduation is awarded to foreign language majors only for passing examinations covering the third and fourth semester level or above.

Credit by examination may not be applied to the 32 semester hours of advanced courses required for the minor.

Advanced Placement Program (APP)

Students who pursue college-level learning while still in high school may take the Advanced Placement tests to demonstrate their level of achievement. This program was designed by the College Board to provide a means for colleges and universities to evaluate the college-level preparation of participating students and to provide opportunities for high school students to begin college-level study while still in high school.

Scores earned by students are decided to be acceptable if the student scores above a certain credit score or advanced placement is warranted. Credit awarded through APP may be applied toward the General Education Requirements, to requirements in the major or minor, or to elective credit.

Specific credit policies and further information can be obtained from the Liberal Arts Office of Academic Programs or the Evaluation and Examinations Service.

College-Level Examination Program (CLEP)

CLEP is an achievement testing program offered by the College Board that allows students to demonstrate college-level competence they may have achieved outside of normal college instructional programs. General examinations cover broad content areas such as the humanities, natural science, and social science subjects. Subject examinations cover more narrow ranges of content as typically dealt with in a single college course. Scores on the general examinations can be used to determine whether students have satisfied all or portion of the General Education Requirement in the area(s) covered by the examination. Those who earn a high enough score on a subject examination are eligible for receive credit for the corresponding University course.

The CLEP program is administered by the University of Iowa Testing and Examination Service. Students who wish to participate in CLEP are encouraged to do so.
### Nondepartmental Courses

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### Unified Program Courses

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</tbody>
</table>

### Other Nondepartmental Courses

Courses numbered 10 and 11 are nondepartmental courses used principally to satisfy the General Education Requirements.

### Aerospace Military Studies

#### Bachelor of Science in Aerospace Military Studies

- **Major** in the USAF
- **Minor** in another USAF-related field

The Department of Aerospace Military Studies administers the Air Force Reserve Officers' Training Corps (AFROTC) at the University of Iowa. The purpose of AFROTC is to recruit, educate, and commission highly qualified students to be officers in the United States Air Force. AFROTC is entirely voluntary, with courses open to all undergraduate and graduate students. The amount of credit for AFROTC academic work that may be earned toward a degree varies from college to college at the University.

In order to receive a commission, AFROTC cadets must complete all University requirements for a degree as well as certain courses specified by the U.S. Air Force. Three programs are offered to complete the U.S. Air Force requirement: a student may complete the four-, three-, or two-year AFROTC program.

Prior to commissioning, all AFROTC cadets must complete a course in mathematical reasoning. Cadets on AFROTC scholarships also must satisfy a requirement for an English composition course and for two semesters of a major in English or American literature. The College of Liberal Arts General Education Requirements must satisfy these requirements.
Educational Delay
Cadets may request an educational delay to postpone entry to active duty until after completion of an advanced degree program or professional training program.

Courses

231:1 The Air Force Today 1.0 b.
Introduction to the USAF, including missions, organization, and personnel. Human relations and communications, writing skills. Offered fall semester.

231:2 The Air Force Today 1.0 b.
Introduction to 231:1 offered spring semester.

232:1 The Development of Air Power 1.0 b.
A survey of the development of air power and its role in the development of warfare. Offered fall semester.

232:2 The Development of Air Power 1.0 b.
Continuation of 232:1. Offered spring semester.

236:1 Basic Flight Ground School 1.0 b.
Basic flight ground school for cadets who are to enter flight training. Course covers physics, aerodynamics, flight instruments, mechanics, weather, flight regulations, Japanese, and introduction to air combat. Offered fall semester.

236:2 Leadership Laboratory 0.5 c.
Field training and leadership training for cadets who are to enter flight training. Includes flight safety, classroom training, and problem solving. Offered fall semester.

236:3 Leadership Laboratory 1.0 c.
Continuation of 236:2. Offered spring semester. May be repeated for credit.

236:4 National Security Forces 3.0 c.
Introduction to the national security forces. Emphasis on the role of the Air Force as an instrument of national security. This course is required for all cadets. Offered fall and spring semesters.

236:5 Management and Leadership 3.0 c.
Introduction to management and leadership concepts in the USAF. This course is required for all cadets. Offered fall and spring semesters.

236:6 Management and Leadership 3.0 c.
Continuation of 236:5. Offered spring semester.

236:7 Readiness in Contemporary America 3.0 c.
An in-depth analysis of national security forces and their role in contemporary society. Offered spring semester.

American-African World Studies
Chair: Daniel T. Turner
Professor: Peter Nusselt
(English/African-American World Studies); Dawna T. Turner (English/African-American World Studies)

Assistant professor: Mac Woodroffe
(English/African-American World Studies); Fredrick Woodard (English/African-American World Studies)

Assistant professor: Stella Byrd
(English/African-American World Studies)

Johanan Wallis (History/African-American World Studies)

Degree offered: M.A., also cognate concentration leading to master's degree, and Ph.D. in American Studies.

Because the African-American World Studies Program is interdisciplinary, it draws cooperating faculty from the departments of American studies, Anthropology, Art, Education, English, French, Geography, History, Political Science, Spanish and Portuguese, and Sociology.

The African-American World Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States from the seventeenth century to the present. To provide a comprehensive view of that subject, the program also offers courses examining the African heritage and present relationships of African-Americans in other lands. Because a thorough understanding of African-American culture cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences. Although the program at present emphasize history and literature, the African-American World Studies Steering Committee continually expands the program by developing courses that have the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1969 through the efforts of the African-American Studies Program was developed in the United States and designed to provide an understanding of the present conditions and concerns of Black Americans. Since then, these courses have been organized into a curriculum that includes a program leading to an undergraduate minor in African-American studies, a Master of Arts degree in Afro-American studies, and concentrations of Afro-American studies in programs leading to a B.A., M.A., or Ph.D. in American Studies. American culture, history, and culture also organize courses in the political science and social science departments of the American-American Studies Program in a special field of cognate area.

Originally called the African-American Student Program, the program was renamed the African-American World Studies Program in 1986. This new name more accurately describes the program and the breadth of the program. Although most of the students in the PhD program are preparing to teach in colleges and universities as professors and administrators, the B.A. and M.A. programs provide valuable backgrounds for many other students seeking careers in community and public school teaching, religious education, and political science. In all, the African-American World Studies Program offers training important to any individual whose career will require understanding and knowledge of Black.
Undergraduate Program

Although the African-American World Studies Program does not offer an undergraduate major leading to a degree in Afro-American studies, students interested in the field may concentrate on Afro-American studies in a program leading to the B.A. degree in American studies. Such a concentration includes 12 credits in African-American Literature and History and 21 credits in Afro-American studies. Two electives from courses numbered 129.11 through 129.15. Courses recommended in Afro-American literature and history are 129.111-117 Afro-American Literature I-IV and two of the following: 129.165 Afro-American History: 1640-1830, 129.166 Afro-American History: 1830-1914, and 129.168 Afro-American History: 1914 to the Present.

Minor

The African-American World Studies Program offers a minor in Afro-American studies to undergraduate students. The requirements conform to the general requirements for minors in the College of Liberal Arts. In consultation with his or her adviser, the student selects 15 semester hours (five courses) in designated African-American World Studies courses. Four of these courses must be numbered 100 or above and must be taken at The University of Iowa. Courses are available in the office of African-American World Studies (319 English-Philosophy Building), in the offices of Afro-American Studies Programs, and in the offices of most departments.

Advisers in the program recommend that students seeking a minor in Afro-American Studies select an introductory course from the following: 129.121, 129.122, 129.123, 129.124, 129.155. Advisers also recommend 129.116 or 129.117, and 129.165 or 129.168 as two of the upper-level courses.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts degree in Afro-American studies provides an intensive, organized, graduate-level examination of Afro-American culture and experience. Such a program especially benefits individuals preparing for careers in college teaching, work with community-service organizations, or those in which an understanding of Afro-Americans may be necessary.

Curriculum Requirements

The Master of Arts program in Afro-American studies comprises 34 post-baccalaureate semester hours, usually completed in three semesters.

Requirements include: 129.211 Introduction to Research in Afro-American Culture (3 s.h.), 129.312 Advanced Research in Afro-American Culture (4 s.h.), and 12 semester hours of required courses in Afro-American studies.

Most students will be required to earn 6 semester hours in literature/history by taking 129.116-117 Afro-American Literature I and II or one of the following: 129.165 Afro-American History: 1640-1830, 129.166 Afro-American History: 1830-1914, 129.168 Afro-American History: 1914-Present. Students who have earned undergraduate or graduate credit for a year-long survey of either Afro-American literature or Afro-American history will satisfy the literature/history requirement by studying the area in which they have no credit.

Students who have earned neither undergraduate nor graduate credit in Afro-American literature or Afro-American history may be required to complete both 129.116-117 Afro-American Literature I and II and the following: 129.165 Afro-American History: 1640-1830, 129.166 Afro-American History: 1830-1914, 129.168 Afro-American History: 1914-Present, with only 6 semester hours of credit allowed toward the M.A. degree. A student who has completed year-long undergraduate or graduate surveys in both Afro-American literature and Afro-American history will be permitted to satisfy the literature/history requirement by selecting 6 semester hours of Afro-American studies electives approved by the student's adviser.

To complete the curriculum, students select 15 semester hours of electives in consultation with their adviser. Recommended are courses in Afro-American music, Afro-American art, or Afro-American literature. All 15 semester hours of electives may be selected from the courses numbered above 100 in the course list below.

Because the African-American World Studies steering committee wants to encourage doctoral study for those who have the ability, interest, and resources, it recommends that the 6 semester hours of electives in the Master of Arts program be used to explore doctoral education in disciplines outside African-American world studies. Possible fields of study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least 1-1/2 of the courses in the M.A. curriculum from those numbered above 200.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American studies, but students considering doctoral study in an Afro-American field are encouraged to complete one tool/language requirement in addition to that field while studying at the master's level.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American culture. A comprehensive examination is prepared and evaluated by a committee of faculty members who teach courses in the African-American World Studies Program. A component of the comprehensive examination is based on a reading list prepared and approved by the African-American World Studies steering committee. An oral examination may be required as a follow-up to the written one.

Thesis/Project Requirements

A thesis is not required for a Master of Arts degree in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must utilize research from more than one discipline. The maximum credit for a thesis is 4 semester hours.

Students who do not prepare a thesis are required to develop, in consultation with an adviser, a project related to Afro-American culture and/or experience. When completed, this project must be presented and defended before an appropriate class in Afro-American studies. Credit for the thesis or project usually is earned through registration in 129.312 Advanced Research in Afro-American Culture.

Admission

In addition to the general requirements of the Graduate College, unconditional graduate admission to the African-American World Studies Program requires that a student have an acceptable educational background and have met certain minimum scores, at least 6 semester hours of college credit in Afro-American literature and/or language courses, and a minimum grade-point average of 2.7 in previous college work in Afro-American studies. A student may be asked to take, without credit toward the master's degree, courses needed to remedy deficiencies in undergraduate preparation.

An applicant for admission is expected to provide three letters of recommendation from former professors and a sample of his or her written scholarly work.

Recommendations for admission are made by the admissions subcommittee of the African-American World Studies steering committee.

Concentration within M.A. Program in Afro-American Studies

A student concentrating in Afro-American studies within a Master of Arts program in American studies usually preparing for a career as a research scholar or a collegiality teacher, and proposes to undertake doctoral work in American studies. Of the 36 post-baccalaureate
semester hours required for the degree, 12 to 24 normally are taken in Afro-American studies. Since the African-American World Studies Program is interdisciplinary, students taking 24 semester hours are required to complete 125:211 Introduction to Research in Afro-American Culture, 129:116-117 Afro-American Literature I & II, and two of the following—129:115 Afro-American History 1860-1930, 129:116 Afro-American History 1930-1945, 129:116 Afro-American History 1945-Present—except when they have taken equivalent courses as the undergraduate level.

For other requirements, see "American Studies" described in this section of the Catalog.

Concentration within Ph.D. Program in American Studies

Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or researcher scholar at the college or university level. Of the minimum 72 profit-acceptable semester hours required for the degree, at least 36 semester hours (not including the thesis) must be in courses in Afro-American studies, including 125:211 Introduction to Research in Afro-American Culture, 129:116-117 Afro-American Literature I & II and two of the following—129:110 Afro-American History 1600-1860, 129:116 Afro-American History 1860-1930, 129:116 Afro-American History 1930-1945, 129:116 Afro-American History 1945-Present—except when the student has completed earlier year-long surveys in Afro-American literature and history before enrolling in the graduate program at The University of Iowa.

The interdisciplinary concentration in Afro-American humanities and social sciences requires students to explore both areas. The student then draws research from more than one field, while focusing on an aspect of Afro-American culture or experience. Additional requirements are described as "American Studies" in this section of the Catalog.

Cognate Areas, Special Fields

It is possible for students to take concentrations of Afro-American studies courses as cognate areas or special fields in Ph.D. programs in History, English, and other disciplines. The student must consult an advisor in Afro-American World Studies.

Co-curricular Activities

Black Kaleidoscope

The African-American World Studies Program promotes knowledge and consciousness of black culture by sponsoring Black Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in black culture.

Institute in Afro-American Culture

From 1964 through 1975, The University of Iowa served as summer host for an Institute in Afro-American World Studies for college and university teachers. The institutes, which brought renowned artists and scholars to the campus, featured topics such as the Harlem Renaissance. Richard Wright, W.E.B. DuBois, Black Americans in theater, and slave narratives. Although students in residence at the University are not required to be official members of the institute, they are permitted to enroll in a 3-semester-hour course offered at the white campus as the institute and on the current year's topic. The program plans to offer institutes in future semesters.

Black Action Theater

Appropriately sponsored through the Afro-American World Studies Program, Black Action Theater gives participants instruction and experience in theatrical productions of plays by Black authors.

Afro-American Cultural Center

The African-American World Studies Program encourages students to use facilities of the Afro-American Cultural Center. The center serves as a research and library of educational and cultural artifacts and exhibits of Black culture, providing cultural enrichment for Black people of the Iowa City community and a cultural meeting place for Black students. It also attempts to promote a dialogue of Black culture that will generate intersocietal understanding among all members of the University community. See "Cultural Centers" in the "Student Life at Iowa" section of the Catalog.

Black Genesis Toupee

The African-American World Studies Program also encourages participation in Black Genesis Toupee, a student organization that blends dance, music, poetry, and visual arts in representations of black culture and history.

Afro-American Studies Graduate Student Association

The African-American Studies Graduate Student Association attempts to promote interest in Black culture by sponsoring programs on various topics. Any University of Iowa graduate student interested in Afro-American world studies is eligible to be a member.

Related Courses

Although they are not included in the basic list of courses in the African-American World Studies Program, the following are recommended for interested students.

Course descriptions, see the appropriate sections of the Catalog.

Business Administration

6:520 Collective Bargaining 3 s.h.

Economics

6:537 Problems in Urban Economics 3 s.h.

Education

7F:104 Education in the Third World 2 s.h.

7T:380 Educational Sociology 2 s.h.

7P:380 Seminar: Value Problems in the Administration of American Education 3 s.h.

7T:310 Socialization of the School Age Child 3 s.h.

7U:132 The Culturally Interested in Educational Settings 3 s.h.

History

16A:65 America 1492-1877 3 s.h.

16A:62 American History 1877-Present 3 s.h.

16A:171 American Intellectual History to 1877 3 s.h.

16A:176 American Intellectual History from 1877 to 1930 3 s.h.

16A:132 United States in the Early Republic 3 s.h.

16A:144 Civil War and Reconstruction 3 s.h.

16A:165 The Global Age in America 3 s.h.

16A:155 The New Era and The New Deal 1920-1940 3 s.h.

16A:108 The Contemporary United States 1940-Present 3 s.h.

16A:179 The Revolutionary Generation in America 3 s.h.

Courses

American-African World Studies and Related Areas

For Undergraduates

129H Introduction to Afro-American Literature 3 s.h.

129P Afro-American Women 3 s.h.

129Q Afro-American Literature: African and African-American Literature 3 s.h.

129Q Afro-American Literature: African and African-American Literature 3 s.h.

250Q Afro-American Art and Literature 3 s.h.

299L Afro-American Literature 3 s.h.

299Q Afro-American Literature and History 3 s.h.

299Q Afro-American Literature and History 3 s.h.

399L Afro-American Literature 3 s.h.

399Q Afro-American Literature and History 3 s.h.

399Q Afro-American Literature and History 3 s.h.

499L Afro-American Literature 3 s.h.

499Q Afro-American Literature and History 3 s.h.
Primarily for Advanced Undergraduates and Graduates

120.10 African Dreams

African dreams in contemporary African reading list to include Joyce for shay, race, and class analysis. Signs 891-921.

120.11 Afro-American Art:

West African, African sculpture, and sculpture with attention to individual artists, movements, and African ethnography. Signs 891-921.

120.12 Art of West Africa:

Signs 891-921.

120.13 African Literature of Portuguese Expression:

Same as 891-921.

120.14 Art of Central Africa:

Same as 891-921.

120.15 African History to the New World:

African and cultural history of African peoples in the New World, emphasizing impact on literature. Same as 891-921. 891-921.

120.16 Race and Ethnic Relations:

Multidisciplinary study of intergroup relations, emphasizing social, economic, and political factors in the study of race relations and ethnic identity. Signs 891-921.

120.17 Afro-American Literature I:

African-American writing from the eighteenth century to 1865 examined in relation to social, cultural, literary, and historical context. Same as 891-921.

120.18 African Language and Culture:

Language development from Afro-American African to present, emphasizing beliefs in relation to cultural, social, literary, and political factors. Same as 891-921.

120.19 Art of the South Pacific:

Signs 891-921.

120.20 African Literature:

Study of the portrayal of African life in contemporary African literature. Same as 891-921.

120.21 Images of Black Women in Modern American Fiction:


120.22 Reading in Afro-American Culture:

Topical area may be taken in independent study by advanced undergraduate and graduate students who have completed basic studies in Afro-American culture. Signs 891-921.

120.23 Black Woman Writers:

Study of evolution of black women's literature in the United States, Caribbean, and Africa selection taken from various sources. Signs 891-921.

120.24 The Black Woman in America:

History of the black woman in American society, with particular attention to the relationship between black women and black men. Signs 891-921.

120.25 History of Black Music:

General overview of the nature of black music in America from the eighteenth century to present, with emphasis on social and historical factors and changing life and cultural and political environments. Open to freshmen. Same as 25.

120.26 International Relations:

Behavioral topics for students interested in work beyond 891-921. Signs 891-921.

120.27 Phoenecian Literature of the Afro-Americans:

Same as 891-921.
that leads to increased opportunities for teaching and research.

Several established programs and resources at The University of Iowa benefit the African Studies Program. The Stanley Collection of African sculptures at the Museum of Art is central to the program and of enormous benefit to students interested in all aspects of African life. The many contemporary African writers who participate in the International Writers Program, African scholars who come to campus through the Program for International Development, and African students enrolled in the School of Journalism and Mass Communication master's program in development support communication within the African Studies Program, as does the exchange between The University of Iowa and the University of Ouagadougou, established in 1983 with funds from a United States Information Service grant.

Certificate Program

The African Studies Program provides undergraduate students with an interdisciplinary background in the study of Africa to complement a departmental major and serves as a step toward possible graduate study of Africa. The certificate is an undergraduate certificate in African Studies includes 21 semester hours of courses on Africa. These are divided into three levels of study: introductory, intermediate, and advanced. Undergraduate students pursuing the certificate take 17 credits of coursework in Africa as an introduction to the continent, its history, art, literature, politics, and peoples and as an introduction to the African faculty at Iowa. This involves the 45 semester hours of intermediate (108-level) lecture courses, with at least one course from each of four areas of study: literature, art, history, and social sciences. Students may choose to complete their certificate requirements by taking a seminar or an advanced course on Africa.

Course Requirements

Full descriptions of each of the courses listed below are given in the appropriate departmental sections of the Catalog.

Foreign Language Requirements

The College of Liberal Arts requirement for the B.A. is four semesters of the language spoken in Africa. Language courses taught at The University of Iowa that meet this requirement are French, Portuguese, and Spanish.

Introductory Course

457 Contemporary Africa 3 s.h.

Intermediate Courses

One 3 semester hour course in each of the following four areas (12 semester hours total):

- Literature
- 80:145:264 Literature of the African Peoples 3 s.h.
- 100:160 African Drama 3 s.h.
- 125:118/119 African Literature 3 s.h.
- 120:161/162 Modern African Novel 3 s.h.
- 91:831/210/135 South Africa
- Literature of the African Diaspora 3 s.h.

- Art
- 10:107/157/157 Art of West Africa 3 s.h.
- 10:123/130/130 Art of Central Africa 3 s.h.
- 10:190 Themes in Art History: African Arts 3 s.h.
- 26:202 Seminar: Problems in African Art 3 s.h.

- History
- 129:160 History of Pre-Colonial Africa 3 s.h.
- 16:121/124 History of Colonial Africa 3 s.h.
- 16:122/127 Modern African History 3 s.h.
- 16:122/127/127 The Politics of Southern Africa 3 s.h.

- Social Sciences
- 30:146/141 African Development 3 s.h.
- 30:148 The Politics of Southern Africa 3 s.h.
- Electives 3 semester hours in any of the four areas above.

Advanced Course/Seminar

A seminar on an advanced course in any of the four areas listed above (3 semester hours). Among the advanced courses offered are the following:

- 149:202 Seminar: Problems in African Art 3 s.h.
- 129/272/272 Three African Writers 3 s.h.
- 44:201 (Sec. 222) African Food Class 1 s.h.

Further information on the African Studies Program is available from the Center for International and Comparative Studies, 405 Jefferson Building, The University of Iowa, Iowa City 52242.

Aging Studies Program

Coordinator: Herman J. McVey

Aging Studies Program

The Aging Studies Program is designed to provide undergraduate and graduate students with a multidisciplinary approach to the study of aging. The program consists of courses that have been coordinated and sequenced to provide a broad background in aging for students of various disciplines. All students plan their course of study with their academic advisors in close cooperation with the Aging Studies Program coordinator.

Program Requirements

The Aging Studies Program requires 18 approved semester hours of course work related to aging at the (9) level or above. This aging-specific course work is defined as courses within the University that are located principally in older persons, the aging process, or intervention methodologies or techniques with the elderly or aging as the target.

Students are required to take an introductory aging course and complete either a research project or practicum course. With the approval of the student's major department, course work may be applied to the student's major or professional programs of study. Six semester hours must be taken outside the student's major department.

Students should take the introductory aging course prior to or concurrent with other courses in the program. The research project or the practicum course should not be required until the student has completed 9 semester hours of the program.

Program Eligibility

The program is open to all interested graduates, upper-level undergraduates (must have completed 45 semester hours), and special status students whose current interests and needs will be served by completing the program.

Students in good standing at the above-mentioned levels may establish plans of study with the Aging Studies Program coordinator, who will work with the student and the student's advisor to plan a plan of study compatible for the student's academic program and career interest.

Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program includes required courses and a required course that is the equivalent of course work to be taken. The coordinator will advise each of the student's approved program and its or her progress. Upon completion of the program, the coordinator notifies the student who indicates

Aging Studies Program/LIBERAL ARTS 55

Hiring Albert B. Hood, Nelson P. W. Seegmiller

Curricular committee: Benjamin Hupper, Eleanor M. McCord, Nelson P. W. Seegmiller

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Students are required to take an introductory aging course and complete either a research project or practicum course. With the approval of the student's major department, course work may be applied to the student's major or professional programs of study. Six semester hours must be taken outside the student's major department.

Students should take the introductory aging course prior to or concurrent with other courses in the program. The research project or the practicum course should not be required until the student has completed 9 semester hours of the program.

Program Eligibility

The program is open to all interested graduates, upper-level undergraduates (must have completed 45 semester hours), and special status students whose current interests and needs will be served by completing the program.

Students in good standing at the above-mentioned levels may establish plans of study with the Aging Studies Program coordinator, who will work with the student and the student's advisor to plan a plan of study compatible for the student's academic program and career interest.

Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program includes required courses and a required course that is the equivalent of course work to be taken. The coordinator will advise each of the student's approved program and its or her progress. Upon completion of the program, the coordinator notifies the student who indicates
completion of the program on the student's transcript.

Minor
Undergraduate students in the colleges of Liberal Arts, Business Administration, Nursing, Engineering, or Education may complete a minor in aging studies by taking 15 semester hours in courses outside of their department or college that are approved for the program. The minor must be approved by the student's college or department. At least 12 of the 15 semester hours must be taken in advanced courses (100 level or above) at The University of Iowa.

Courses
For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Introductory Courses
All students must take at least one and no more than two introductory courses. The introductory courses accepted in the program include:

17:158 Basic Aspects of Aging
34:120 Aging and Society
42:184 Multidisciplinary Perspectives on Aging
96:125 Introduction to Gerontology

Practicum and Research Courses
At least 3 and no more than 6 semester hours of credit for a practicum and/or internship course will be accepted for the Aging Studies Program. Practicum and research courses include:

17:090 Cooperative Education Internship
17:175 Home Economics Internship
42:158 Selected Aspects of Social Work and Social Welfare-Interdisciplinary Field Work in Gerontology

Other departmental practicum or research courses will be accepted if the current and focus of the course of study is aging-specific.

Elective Courses
Students may take elective courses to meet their particular needs and interests. Additional courses that may be used to fulfill the requirements for the program can be selected from the following:

American Studies
45:13 Aging in America
Anthropology
115:136 Aging: A Cross-Cultural Perspective
Biology
35:271 Seminar in Cell Physiology

Business Administration
68:123 Public Economic Security Programs
72:280 Topical Seminar in Counseling Education

Dentistry
112:145 Introduction to Geriatric Dentistry

Health and Hospital Administration
86:059 Long-Term Care Administration

Home Economics
17:211 Individual and Family Development: Life Span (partial credit)

Internal Medicine
38:093 Geriatrics Seminars

Nursing
96:120 Normative and Psychopathological Aspects of Aging
96:131 Nursing Care of the Institutionalized Gerontological Client
96:230 Biophysical Concepts in Human Aging

Physical Education
27:112 Physical Activity and Aging

Recreation Education
104:048 Contemporary Issues in Recreation and Leisure
104:112 Aging and Leisure

Religion
32:183 Introduction to Biomedical Ethics (partial credit)
32:190 Death and Dying
Sociology
34:136 Social Psychology of Aging
34:230 Sociology of the Family (partial credit)
24:210 Aging and Human Development

Social Work
42:158 Aging and Social Work
42:185 Social Policy and the Elderly
42:220 Social Policy Issues in Human Care (partial credit)

Speech Pathology
32:360 Seminar on Communication and Aging

American Studies Program
Chair: Richard P. Horvitz
Professors: Wayne Frankin (English/American Studies), John Butler (American Studies/Education), Albert E. Stone (American Studies/English), Peter Nowell (English/African-American/American World Studies), Dawiss T. Turner (African-American World Studies/English)
Associate Professor: Richard P. Horvitz (American Studies)


Degrees offered: B.A., M.A., Ph.D.


In its course work and for its majors, the American Studies Program provides an interdisciplinary introduction to American culture, past and present. The program helps students and critics of culture acquire a broad familiarity with the changing nature and contributions of subcultures.

Undergraduate Program

Bachelor of Arts
The B.A. degree in American studies stresses broad training in cultural analysis and comparative methods rather than specific preprofessional or vocational training. It also provides preparation in areas of interest in business, education, government, journalism, and business for advanced studies in the humanities, the social sciences, theology, or business, or for professional studies in law or medicine.

With his or her advisor's assistance and approval, a student entering American studies develops an individual plan of study. Combining courses from cognate departments and programs with Integrative American Studies Program courses to explore a common period, topic, theme, or problem in American culture experience. The major usually consists of 12 courses (30 semester hours) in cognate departments and/or American studies. The courses in the American and African-American World Studies usually include:

Required courses:
61: American Values
45:06 Turning Points in American Culture

3 s.h.

3 s.h.
Two of the following:
45.2 American issues 3 s.h.
45.3 Women in American Culture 3 s.h.
45.4 Family and Sex Roles 3 s.h.
45.5 Media Studies 3 s.h.
45.6 Regional Studies 3 s.h.
45.7 Sex, Race, and Ethnicity 3 s.h.
45.9 American Music 3 s.h.
45.10 Readings in American Studies 3 s.h.
45.11 Childhood and Youth in America 3 s.h.
45.13 Aging in America 3 s.h.
45.16 Visual Arts and American Culture 3 s.h.
45.19 American Institutions: The Business Corporation 3 s.h.
The Cordial Shop 3 s.h.
45.189 Autobiography and American Culture 3 s.h.
45.190 Popular Culture 3 s.h.
123.90 Introduction to Afro-American Society 3 s.h.
123.91 Introduction to Afro-American Culture 3 s.h.

General education courses in historical perspectives, humanities, literature, and social science provide relevant preparation for the American Studies major: 8-25 American Lives is especially recommended.

Horns
Horns candidates in American studies must take 45.90 Turning Points in American Culture and 45.10 Readings in American Studies. With his Horns advisor's help, the student in 45.90 defines a research project on an American topic of his or her choice, and presents the results of the research in a senior essay.

Minor
Students interested in a minor in American studies should consult members of the staff. The minor requires a minimum of 15 semester hours of credit. American studies at least 12 of the 15 semester hours must be at The University of Iowa in courses numbered 15.100 and above. 45.50 also may count toward this requirement.

Graduate Programs
Master of Arts
The M.A. degree in American studies may be a terminal degree or a degree preparation to the Ph.D. in American studies or a traditional discipline.

The M.A. program in American studies includes 12 courses normally totaling 36 semester hours. Requirements include:
42.296 Theory and Practice in American Studies 6 s.h.
Three other courses or seminars in American studies or African-American World studies.

Two courses in American history (unless already taken as undergraduate courses). Six or eight additional courses selected in relation to a topic or period of cultural history. These courses may be grouped to address more than one topic or problem, but must be chosen from more than one discipline or department.
Satisfactory performance on a comprehensive examination on course work and basic concepts.

The M.A. may also be taken with thesis, in which case 36 semester hours of course work is the required minimum, students should consult the program for details.

A joint program leading to the M.A. degree in American studies and the J.D. degree from the College of Law provides a broad culture context for the study and practice of law. Joint program students can be enrolled in other professional fields, including social work and journalism.

Doctor of Philosophy
The Ph.D. program in American studies requires a minimum of 72 semester hours of course work, preparing the candidate in four areas: American studies courses and seminars in interdisciplinary approaches and methods; substantial course work in one or more major fields; and courses in two or more minor fields, including in texts or skills. Although permitted considerable flexibility in planning the program, the American studies candidate must satisfy certain basic requirements: One is that all students directly attend to American culture in the areas of study. Some course work is required in areas such as American literature and women's studies; familiarity with race and gender issues will be expected specifically on the candidate's exam. A second requirement is that each program include a substantial study of one period of American culture history as defined by the student's explicit interests. Hence, history is considered either background to or the actual course work in historical programs. The candidate normally takes 45.300 Theory and Practice in American Studies both semesters of the first year of graduate study, and may include 45.530 Special Graduate Projects among the two or three other courses taken in the area of interdisciplinary approaches and methods in American studies. Instead of a written examination in this area, the student prepares a position paper or interdisciplinary essay.

The student must take, six, or seven courses (15-21 semester hours), including tutorials, in each of the major areas. Four-hour written examinations on each of the major areas, together with the intermediate position paper or essay, provide the basis for the candidate's oral final examination.

The student also takes three or four courses, organized around a specific topic or subdiscipline, as one or two minor areas.

Instead of a written final examination, the candidate prepares an annotated bibliography in the minor field for evaluation by a member of his or her comprehensive examination committee. Candidates who have already submitted an annotated bibliography for a course have the option of replacing the bibliography with a written comprehensive examination based on an abbreviated reading list.

The tools and skills area or minor field must include at least two courses of six semester hours of graduate-level work at Iowa in foreign language, film-making, museum work, linguistics, computer science, statistics, etc. In addition, up to six semester hours in thesis research and writing, teaching methods, and courses on American studies topics outside the major and minor areas may be included in this area.

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic with an examination involving one or more fields or disciplines. The candidate may petition to present a creative-creative—such as fiction, autobiography, etc.—combined with a critical analysis of the cultural role the thesis reflects, but permission to undertake such a thesis is granted only by the American studies steering committee.

Internships
Qualified graduate students in American studies can arrange internships with the State Historical Society of Iowa, Division of Historic Preservation, The University of Iowa Museum of Art, the Iowa Humanities Board, Living History Farms, the Herbert Hoover National Historic Site, and the Pocahontas Museum, Davenport. Other internships in Chicago can be negotiated with Hull House, Newberry Library, Church Council of Chicago, Spertus Museum of Judaica, Field Museum of African-American History, and the National Training Institute. Candidates conducting research during such on-the-job training may have academic credit. Other internships in social agencies, government, or businesses also may be a means of course credit if allowed when a research component is included.

Courses
Primarily for Undergraduates
45.000 Cooperative Education Internship 1-3 s.h.
45.100 American Values 3 s.h.
45.150 Introduction to American studies via representative texts 3 s.h.
Graduate Programs

Master of Arts

The M.A. program is general in nature, designed to prepare the student to teach with any aspect of anthropology at an introductory level.

The department offers the M.A. degree with or without thesis. The program without thesis requires consideration for admission to the Ph.D. program.

The number of semester hours of credit required for the M.A. with thesis may vary from 30 to 36, depending upon the student's previous anthropological training. The thesis program requires at least 36 semester hours of graduate work. The department also offers a 24-semester-hour M.A. degree without thesis in anthropology with a concentration in Museum Training. The following are the core area requirements at the M.A. level:

115:240 Seminar: Social Anthropology
115:301 Seminar: Anthropological Theory
These four courses:
115:172 Anthropological Linguistics
115:288 Seminar: Ethnological Theory and Method
115:289 Seminar: Biological Anthropology
115:302 Anthropological Data Analysis
Two courses from the following subject areas:
Social Institutions
Logical Anthropology (summer session in the Department of Linguistics) and Applied Anthropology
No more than 9 semester hours of course outside of anthropology and no more than 3 semester hours of independent study may be applied toward the M.A. degree requirements in anthropology.
Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the above distribution requirements.

M.A. Program in Anthropology with a Concentration in Museology

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museology. Details of the requirements and the general operational procedures of small science museums form part of the student's training. Further information on this program may be obtained from the Department of Anthropology and the Museum of Natural History.

Doctor of Philosophy

Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained at the M.A. level and professional specialization in one. Students at The University of Iowa currently may select specializations including: archaeology, linguistic anthropology, and social-cultural anthropology.

Training in a specialization is guided by a Ph.D. committee composed of members of the faculty competent in the particular areas and topics chosen by the student. The only limitations in program effect are based on the faculty's expertise in given areas or the feasibility of arranged for training and guidance.

These are the requirements:
At least 72 semester hours of graduate course work;
Demonstration of a reading knowledge of one foreign language;
Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, or paleontology);
Ethnographic or archaeological specialization in a major geographic area (for example, North America, Mesoamerica, Oceania, Southeast Asia, the Caribbean, Europe), approved by the student's advisory committee;
Specialization in a major and minor topical area;
A written comprehensive examination in the student's area of specialization:
Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kinds of topics that may serve either as major or minor areas in sociocultural or linguistic anthropology include: behavioral or social organization, ethnobotany, economic anthropology, language and culture, religion, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in archaeology include settlement archaeology, environmental archaeology, and dating methods.

The comprehensive examination ordinarily is taken when the student's course work is completed or nearly completed, after the language and research skills requirements have been satisfied, and before the student begins field work. All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct field work in the basis for their dissertation; occasionally, however, a research proposal may be carried out using only documents, collections, or other research materials.

All doctoral candidates are required to be adequately trained in techniques of lab-based primary data in archaeological or ethnographic field research.

Admission

Applicants for admission to the graduate program in anthropology are considered regardless of the field of their previous training. An applicant with an M.A. degree in another discipline must seek admission as a first-year graduate student. Admission to the department's graduate program may be at either the M.A. or Ph.D. level. However, all admission to the Ph.D. program depends on successful completion of departmental requirements.

Any student with an M.A. with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. in anthropology from another institution may proceed directly to a specialized Ph.D. program. Admission to the Ph.D. program is limited to students who wish to conduct research in an area of interest and competence represented among the departmental faculty.

Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College (see "Graduate College: section of the Catalogue") and must submit a completed University application form; transcript of all previous undergraduate and graduate course work; three letters of recommendation from previous instructors; and a statement of the candidate's potential for graduate training, scores from the aptitude portion of the Graduate Record Examination (GRE). Aptitude Test, and at least one typewritten example of previous work (for example, a term paper or an original experiment). An applicant with an M.A. degree from another university must submit a copy of his or her master's thesis. An applicant who earned an M.A. without thesis or whose thesis is not complete must submit six copies of three papers completed in undergraduate work.

It is desirable that the applicant have at least a 3.0 grade-point average. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.

Assistantships

Most graduate students receive financial aid in the form of teaching and research assistantships. Application for an award should be made directly to the chair, Department of Anthropology.
placed on the fine arts, and specifically commercial art courses are not part of the program, courses in the theory of graphic design prepare graduates for positions as commercial designers.

As much as possible, the design of academic programs is arranged to meet the individual student's needs. It permits the development of specific as well as general programs in studio art and history. The major requirements of the undergraduate program are broad and flexible; specialization is discouraged. The art history major requires at least an introduction to studio work. The studio major requires development of a foundation in art history and in at least six areas of studio art. The aim of the joint curriculum is to give students a basic understanding of the history of art and aesthetics; it does not focus on particular short-term styles or fashions.

Undergraduate Programs

Bachelor of Arts

The B.A. candidate in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 86 non-art semester hours toward the total of 124 semester hours required for the degree.

Course lists originating in the School of Art and Art History may not be counted toward the general liberal arts course and hour requirements.

Art and art history majors in the B.A. degree program may waive 3 semester hours of the historical perspectives General Education Requirement, those in the B.F.A. degree program may waive 6 semester hours of historical perspectives General Education Requirement.

Studio Emphasis

The B.A. degree with studio emphasis requires the following courses and credits in art:

Art History:
- Two courses (selected from 181, 185, 196, and 191B) 6 s.h.
- Two additional courses exclusive of those courses listed above 6 s.h.

Art Education:
- 111-12 Columbia 2 s.h.
- 113 Basic Drawing 2 s.h.
- 114 Basic Design 2 s.h.

Any two of the following courses:
- 120-60 Ceramics 1 2 s.h.
- 120-84 Introduction to Metalworking 2 s.h.
- 120-M1 Multimedia I 2 s.h.
- 121-15 Undergraduate Sculpture I 2 s.h.

Two beginning courses, one each from two different studio areas not taken to satisfy the requirements above: Design
1D-21 Problems in Design I 4 s.h.
1D-22 Problems in Design II 4 s.h.
1D-25 Lettering I 4 s.h.
1D-28 Graphic Design I 4 s.h.
Drawing
1F-7 Life Drawing I 4 s.h.
Painting
1K-5 Painting I 4 s.h.
1K-10 Painting II 4 s.h.
Photography
1C-54 Beginning Photography 4 s.h.
Printmaking
1M-51 Undergraduate Printmaking I 4 s.h.
Fiber Art
1F-191 Printing and Dyeing 4 s.h.
1F-192 Weaving 4 s.h.
Electives to bring the total number of credits in history of art, studio, or art education combined to a minimum of 38 semester hours.

No more than 50 semester hours of credit in art courses that the student must will be counted toward the total of 124 semester hours required for the degree.

Transfer students majoring in studio must complete all required courses at the University of Iowa, minimum of 3 semester hours in art history and 12 semester hours in studio, in addition to the six basic studio courses required above and including at least two different studio areas.

Undergraduate transfer students majoring in studio must, at their first registration, show a portfolio to a faculty review committee, which will determine the student's placement in, or exemption from, the sequence of basic studio courses.

Art History Emphasis

Major requirements for the B.A. degree with an emphasis in art history are 9-12 semester hours of studio courses, as advised, and 6 semester hours of studio (two courses) from 101, 111, 196, and 191B, plus 18 semester hours of intermediate and advanced art history.

Electives must raise the total of art courses to a minimum of 38 semester hours and may raise the total to a maximum of 60 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

Honor students in art history must maintain a maximum grade-point average in art history of 3.5, and must complete 6 semester hours (beyond the 12 semester hours of intermediate and advanced art history) in a seminar and a written thesis, for 3 semester hours credit each.

Non-art credits must include two or more semesters of a second foreign language, and at least 12 semester hours in at least three disciplines, including two of the following: anthropology, classics, drama, history, language, literature, music, philosophy, religion, or sociology.

Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the student's required minimum registration for courses in art history and studio.

Art Education

Students seeking the B.A. degree in art education may choose either the studio or art history emphasis, satisfying the requirements described above and, in addition to the general requirements for teacher certification (see the "College of Education" section of the Catalog), must satisfy three specific requirements:

1E-196 Concepts in Art Education 3 s.h.
1E-198 Art Education Studio 3 s.h.
5E-143 Methods 3 s.h.
7E-160 Advanced Methods: Art 3 s.h.
7E-187 Seminar: Curriculum and Studio Methods 3 s.h.
7E-192 Lab Practice in Elementary Education 3 s.h.
7E-101 Observation and Lab Practice in Secondary School 3 s.h.

The following course is elective:
1E-230 Art Education and the Museum 3 s.h.

Bachelor of Fine Arts (studio only)

Prospective B.F.A. students must apply to enter the program following completion of at least one semester or work in the studio area of concentration, but before completion of 50 semester hours in art.

The B.F.A. requires that the 124 semester hours needed to graduate must include 62 semester hours of credit from courses taken outside the School of Art and Art History and 62 semester hours of credit in School of Art and Art History courses.

In addition to the general education requirements (see the "College of Liberal Arts" section of the Catalog) and major requirements listed above, the B.F.A. degree with studio emphasis, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course, and must complete at least the second semester of course work in each of two additional studio areas. Art education majors in the B.F.A. program
must meet the same teacher certification requirements as those in the B.A. program.
B.F.A. candidates may waive 6 semester hours of the historical perspectives General Education Requirement.

Graduate Programs

Master of Arts in Art History

As M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline; become familiar with major periods and monuments of world art; gain proficiency in techniques of research within selected areas.

Specific requirements include:

A B.A. or B.F.A. degree, with at least 18 semester hours of undergraduate work in art history;

A minimum of 30 semester hours of graduate-level studio work, with a grade-point average of 3.0 or higher;

At least a one-semester "intermediate" (100-level) course completed with at least a 3.0 grade-point average in each of five of the following areas of art history:

Ancient (to 300 A.D.);

Medieval (300-1500);

Renaissance to Baroque (1500-1700);

Nineteenth Century in Europe, Oriental, and Primitive Pre-Columbian.

Course distribution for the M.A. in art history is as follows:

HI 294 Seminar: Methodology of Art History and Criticism 3 s.h.

Two other art history seminars (with different instructors) 4-6 s.h.

Additional art history courses 14-21 s.h.

Studio 0-6 s.h.

Courses outside the school 0-0 s.h.

Students with little or no undergraduate studio training are required to take two courses in different studio fields; students with substantial undergraduate studio training are exempt from the graduate studio requirement.

A student preparing to teach in both the art history and studio areas take 12-18 semester hours of studio course work, with a minimum of 8 semester hours in one subject, in addition to the undergraduate requirement for a studio major, and also must satisfy the drawing requirement.

Studio courses may be taken on a satisfactory/un satisfactory basis.

M.A. candidates with undergraduate majors in art history are required to take courses outside the school.

Within the first 20 semester hours of graduate work, the M.A. candidate is expected to demonstrate the ability to read art historical writings in an appropriate foreign language, normally German or French, through other languages, including Oriental languages, may be acceptable. This requirement may be fulfilled by an examination by the Graduate Committee of the University of Iowa department satisfactory, completion of the first semester of a Ph.D. language reading course, or satisfactory completion of at least a 3.5 grade-point average of the fourth semester of a college or university language course.

Qualifications for the M.A. degree require a comprehensive written examination, broadly covering the entire field of art history.

The student must prepare either a written thesis, for which 3 semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages).

Master of Arts in Studio

The school offers the M.A. degree in studio art in various fields, such as painting, drawing, metalworking, jewelry, woodwork, and video art, painting, jewelry, and metalworking. The M.A. degree in studio art, accompanied by a broad statement of the student's technical, aesthetic, and psychological approach, and, as the M.A. degree in studio art, clearances for M.A. candidates by faculty review.

Art education majors who elect to do a studio thesis and who have had drawing at The University of Iowa are required to select a drawing course, selected from the school's regularly scheduled drawing courses, during the first year in residence.

Art education majors may elect to take art history courses on a satisfactory/un satisfactory basis.

Master of Fine Arts (Studio Only)

The school offers the M.F.A. degree with a major in ceramics, design, drawing, metalworking, jewelry, woodwork, and video art, painting, jewelry, and metalworking. The M.F.A. candidate must have an M.A. degree in art equivalent to that offered at The University of Iowa, and a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 0 semester hours in a minor studio subject, 5 semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school, clearance for M.F.A. candidacy by the major professor and studio written thesis. Thanks credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Doctor of Philosophy (Art History Only)

The Ph.D. student is expected to have a broad general knowledge of art history and to acquire advanced knowledge of a specialized area of the history of art to be selected by the student in consultation with appropriate faculty members in the school.

No more than 36 semester hours of credit earned in any M.A. program may be applied.

Teaching certification in art:

Completion of 36 semester hours of graduate credit, including 18 semester hours of studio art history in a ratio of two to one (either 12 semester hours of graduate credit in studio art and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education and 12 semester hours to be specified after the student completes the program.

An oral and/or written examination in art education:

A written thesis based on research in art education or art history is a studio thesis, accompanied by a broad statement of the student's technical, aesthetic, and psychological approach, and, as the M.A. degree in studio art, clearances for M.A. candidates by faculty review.

Art education majors who elect to do a studio thesis and who have had drawing at The University of Iowa are required to take at least one drawing course, selected from the school's regularly scheduled drawing courses, during the first year in residence.

Art education majors may elect to take art history courses on a satisfactory/un satisfactory basis.
toward the 72 semester hours required for the Ph.D.
The University of Iowa residence requirement for the doctorate must be met by enrollment at this University as a full-time student in each of two semesters beyond the first 24 semester hours of graduate work.
Course requirements beyond the M.A. program outlined above are:
Two art history seminars (with two different requirement courses) 4-6 s.h.
Additional art history courses 18-28 s.h.
Courses outside the curriculum 0 s.h.
Students holding the M.A. from another institution must take the school's M.A. comprehensive examination in art history in the first two regularly scheduled examination dates following admission.
Within the first 15 semester hours of graduate work beyond the M.A., the doctoral student must demonstrate ability to read art historical writings in two appropriate foreign languages. For majors in European art, one language normally will be German; for majors in Oriental art, Sanskrit, Chinese, or Japanese may be acceptable. The procedure for satisfying the Ph.D. language requirement is as explained in the description of the M.A. in art history program.
The student must take a comprehensive examination in one major field (5 hours) and two minor fields (3 hours each) selected by the student in consultation with the student's advisor. Students should register in at least one minor field. The student may be examined in a discipline or discipline outside the school-for example, religion, history, or philosophy.
The student must prepare a written dissertation reviewing an original scholarly contribution to the field. The student must present at least 15 semester hours of credit toward the art history course requirements for dissertation preparation. The student must formally present the dissertation topic for faculty approval. The student is given a final oral examination on the dissertation.
Graduate Admission: Studio Admission procedures for graduate studio programs vary. Students should consult the appropriate catalog review of applications and all of the applicant's supporting material. The student should be consulted for meeting dates.
Ceramics, design, metalworking or jewelry, multimedia or video art, or painting majors must submit slides and/or photographs of their work in their major fields; only applicants who are resident at the University may submit original work in these areas. Drawing majors must submit original drawings, which must include figure drawings. Painting majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should send 10 black-and-white photos or slides, if color is important-of their work. Studio applicants also must submit examples of their work in other areas and three letters of recommendation. Newly admitted students who do not register within two semesters of their admission must reapply. Students who need an extended period, less than 36 months, must apply for readmission.
Graduate Admission: Art History and Art Education Applicants to the graduate program in art history must submit a term paper or other example of ability to write in the field. Applicants in art education must submit a term paper or other example of ability to write in the field, and a selection of slides or photographs of their creative work in two studio areas. All applicants must submit three letters of recommendation.
Deadline for receipt of completed art history and art education applications is June 15 for the fall semester, November 15 for the spring semester, or April 15 for summer semester.
Newly admitted students who do not register within two semesters of their admission must reapply. Students who need an extended period, less than 36 months, must apply for readmission.
Assistantships and Scholarships Assistantships paying approximately $8,140 per academic year and 40 hours of departmental duties weekly are awarded to graduate students on a competitive basis. One-quarter-time assistantships also may be available. The award of an assistantship entitles the recipient to the Iowa resident tuition rate. Scholarships paying partial or full tuition and entailing no departmental duties require at least a 2.0 cumulative grade-point average. These financial aids usually are awarded to students who have been in residence for at least one semester, so that faculty members have an opportunity to observe their performance and potential.
Facilities School facilities include an art library containing 64,000 volumes; a visual materials library containing 225,000 slides and 80,000 photographs; an integrative printshop; furnaces and equipment for large-scale iron and bronze casting processes as well as facilities for welding and for casting of steel sculpture; a well-equipped darkroom; extensive kiln facilities including provence for construction of various types of temporary and specialized kilns, a large shop for woodcarving, metalworking, and industrial design; electrophotographic equipment; a masking machine; typographic studio; and video equipment.
Courses
Art History
Primarily for Undergraduates
100:1 Understanding the Visual Arts 3 s.h.
Exploration of the ethnocentric symbols of art required for an understanding of the ways the world arts understanding of the world.
100:2 The Art of Tribal Cultures 3 s.h.
Tranquil arts of the tribal cultures of Black Africa and the Pacific, and of the American Indians before the European contact 2 s.h.
110:3 Art and Religious Ritualism 3 s.h.
Analysis and interpretation of primitive images produced for world religions 3 s.h.
114:4 Massproduced World Art 3 s.h.
In-depth analysis and interpretation of selected masterpieces of art, 3 s.h. and sculpture.
115:5 Western Art and Culture before 1400 3 s.h.
Virtually all art before 1400, the relation of art, 3 s.h. and culture from the civilizations of the Near East to the major religious periods of the Mediterranean.
116:6 Western Art and Culture after 1400 3 s.h.
In-depth examination of art, 3 s.h. and culture from the Renaissance to the present.
120:1 Islamic Art and Civilizations 3 s.h.
Mozaffarabad to the Islamic Revolution, 3 s.h.
120:5 Introduction to Islamic Art 4 s.h.
120:9 Introduction to Jewish Art 3 s.h.
Art and architecture of Jewish civilizations from the Jews in the Persian Empire to 1650.
120:10 Introduction to Medieval Art 3 s.h.
Art and architecture of Europe from 300 to 1600 A.D.
120:11 Introduction to Renaissance Art 3 s.h.
Art and architecture in Europe from 1350 to 1500.
120:12 Introduction to Baroque Art 3 s.h.
Art and architecture in Europe from 1500 to 1750.
120:13 Introduction to Baroque Art 3 s.h.
Introduction to the Modern Art 3 s.h.
120:14 Introduction to Modern Art 3 s.h.
120:15 Introduction to Modern Art 12 s.h.
Introduction to Modern Art 3 s.h.
120:16 Introduction to the Modern Art 3 s.h.
120:17 Introduction to the Modern Art 3 s.h.
120:18 Introduction to the Modern Art 3 s.h.
120:19 Introduction to the Modern Art 3 s.h.
120:20 Introduction to the Modern Art 3 s.h.
120:21 Introduction to the Modern Art 3 s.h.
Course numbers above 100 have as prerequisite an introductory course in the appropriate area and permit of the instructor.
100:22 Art of the Americas 3 s.h.
100:23 Art of the Americas 3 s.h.
100:24 Art of the Americas 3 s.h.
100:25 Art of the Americas 3 s.h.
The Program in Asian Studies

This program is designed to introduce students to the South Asian cultures, both modern and traditional, and to contemporary political and social problems in Asia. Courses are taught by Asian specialists in many departments. Students are encouraged to take courses in a number of disciplines and in more than one area of Asia.

Students in the program in Asian Studies major must complete 30 semester hours of courses in Asian studies, distributed as follows:

- 39:10-11 Second-Year Chinese 12 s.h.
- 39:33-34 Second-Year Hindi 8 s.h.

At least one course on the history or the area whose language they are studying is chosen from:

- 39:131 History of Ancient and Traditional India 3 s.h.
- 39:134 Imperialism and Modern India 3 s.h.
- 39:153 Traditional China 3 s.h.
- 39:154 China: Opium War to Mao 3 s.h.
- 39:155 Premodern Japan 3 s.h.
- 39:154 Modern Japan 3 s.h.

Other courses on Asia 100-level or above for those taking Chinese or Japanese 15 s.h. for those taking Hindi 21 s.h. for those taking Sanskrit 25 s.h.

Many students find a Program in Asian Studies major to be of great interest, not only for its historical, political, scientific, and cultural value, but also for its value in providing a broad perspective on Asian civilization. Students should plan their course of study to include a variety of disciplines and to be as broad as possible.

For students of Japanese:

- 39:105-106 Third-Year Japanese 12 s.h.
- 39:141 Modern Japanese Literature in Translation 3 s.h.
- 39:142 Modern Japanese Fiction in Translation 3 s.h.

For students of Sanskrit:

- 39:186-187 Third-Year Sanskrit 6 s.h.
- 39:135-136 Indian Literature 6 s.h.
- 39:163 Indian Religious Texts 3 s.h.

With the approval of the departmental adviser, students may substitute 6 semester hours of 300-level courses in South Asian studies for third-year Sanskrit.

Students are urged to fulfill the General Education Requirement in historical perspectives by completing 16:5-6 Civilization of Asia.

Minors

Minors in the languages offered by the department and in the Program in Asian Studies are also available. See the General Bulletin for more information.

Honors

Students with a grade-point average of 3.3 or above are encouraged to enroll in the College of Liberal Arts Honors Program. Application must be made to the College Honors Program Director and the Honors Adviser. Students are encouraged to consult with a Honors Advisor to develop a program of courses for honors work.

Graduate Programs

Master of Arts in Asian Civilization

The graduate program in Asian civilization provides preparation for doctoral study in a variety of disciplines and may be of particular interest to students with an interest in the area. The program is designed to provide a broad perspective on the history, culture, and contemporary issues of Asia. Students are encouraged to take courses in a variety of disciplines and to be as broad as possible.

Library Facilities

Since 1960, the University Library has been purchasing all books on Asia issued by major publishers in Western languages. The library's Asian section includes approximately 75,000 books, periodicals, and microforms, and it is constantly being augmented.

Courses

Undergraduate Language

39:101-102 Beginning Japanese I & II 8 s.h.
39:105-106 Beginning Chinese I & II 8 s.h.
39:107-108 Beginning Hindi I & II 8 s.h.
39:110-111 Beginning Sanskrit I & II 8 s.h.
39:115-116 Beginning Indonesian I & II 8 s.h.
39:117-118 Beginning Vietnamese I & II 8 s.h.
39:119-120 Beginning Thai I & II 8 s.h.
39:121-122 Beginning Korean I & II 8 s.h.
204.142 Modern Japanese Fictions 3 a.h.
Survey in English translation of major Japanese works of fiction from the postwar period to the present. No knowledge of Japanese required. Same as 40.160.

204.143 Japanese Literature in Translation 3 a.h.
Introduction to selected topics in Japanese literature in English translation. Course varies. May be repeated for credit.

204.144 Chinese Literature 3 a.h.
Emphasis on literary works written in Chinese over a wide range of periods and styles. Varies. Students may repeat for credit if the topic differs. Same as 204.160.

204.160 Modern Chinese Writers 3 a.h.
Modern Chinese literature in its social and cultural context, with emphasis on fiction in translation. Same as 204.160.

204.162 Japanese Literature in Translation 3 a.h.
Same as 204.160.

204.244 Seminar in Japanese Fiction 3 a.h. or 4 a.h.
Same as 204.224.

204.260 Seminar in Chinese Fiction 3 a.h.
Selected novels and novels of authors in eighteenth-century China, including "Hung Lou Meng" and "The Red Chamber." Same as 214.260.

204.261 Seminar in Chinese Literature 3 a.h.
Advanced seminar in Chinese literature. Prerequisite: completion of two years of modern Chinese literature. This course emphasizes the culture and society of modern-day China. Students must be fluent in written and oral Chinese. May be repeated for credit.

204.262 Readings in Japanese Literature 3 a.h.
Advanced seminar in classical or modern Japanese literature works for the advanced student. Prerequisites: 204.250 and consent of instructor.

Civilization Courses

Introduction to English

214.151 Chinese Civilization 3 a.h.
Historical and cultural study of Chinese civilization, focusing on its geography, literature, culture, and religion. Students who have taken 214.155 may not repeat this course.

214.155 Introduction to Asian Art 3 a.h.
Survey of art in China, India, Japan, and the Islamic world. Same as 214.165.

214.165 Japanese Today 3 a.h.
Introduction to modern Japanese society and culture. Same as 214.165.

214.166 Introduction to the Chinese traditional civilization 3 a.h.
A survey of Chinese civilization from ancient Mesopotamia to the 20th century. Same as 214.166.

214.167 Chinese Traditional Science and Society 3 a.h.
Same as 214.167.

214.182 Traditional Chinese Society 3 a.h.
An introduction to the structure of Chinese society from ancient times to the late nineteenth century, emphasizing its role as a model for modern Chinese and Japanese society. Same as 214.182.

214.191 Chinese Philosophy 3 a.h.
Introduction to Chinese philosophy. Same as 214.191.

214.192 Chinese Art 3 a.h.
Survey of Chinese art and culture, focusing on its history, development, and influence on modern art. Same as 214.192.

214.193 Chinese History 3 a.h.
Survey of Chinese history, focusing on its political, social, and cultural development. Same as 214.193.

214.194 Chinese Culture and Society 3 a.h.
Survey of Chinese culture and society. Same as 214.194.

214.195 China, India, and Japan 3 a.h.
Survey of China, Japan, and India. Same as 214.195.

214.241 History of the World 3 a.h.
Survey of world history. Same as 214.241.

214.243 History of the World 3 a.h.
Survey of world history. Same as 214.243.

214.255 Living Religions of the East 3 a.h.
Selected historical and contemporary aspects of the religions of India, Buddhism, and Hinduism. Same as 214.255.

214.261 Study of the Written Character 3 a.h.
An introduction to the history and development of the written Chinese character. Prerequisites: 214.160 or equivalent.

214.263 Chinese Painting 1 3 a.h.
Survey of Chinese painting. Course varies. May be repeated for credit.

214.264 Chinese Painting 2 3 a.h.
Survey of Chinese painting. Course varies. May be repeated for credit.

214.265 Japanese Painting 1 3 a.h.
Survey of Japanese painting. Course varies. May be repeated for credit.

214.266 Japanese Painting 2 3 a.h.
Survey of Japanese painting. Course varies. May be repeated for credit.

214.267 Korean Painting 1 3 a.h.
Survey of Korean painting. Course varies. May be repeated for credit.

214.268 Korean Painting 2 3 a.h.
Survey of Korean painting. Course varies. May be repeated for credit.

214.360 Art of Japan 3 a.h.
A chronological and geographical survey of Japanese art, focusing on its history, development, and influence on modern art. Same as 214.360.

214.361 Chinese Calligraphy and Painting 1 3 a.h.
Survey of Chinese calligraphy and painting. Same as 214.361.

214.362 Chinese Calligraphy and Painting 2 3 a.h.
Survey of Chinese calligraphy and painting. Same as 214.362.

214.363 Art of China 3 a.h.
An introduction to Chinese art, focusing on its history, development, and influence on modern art. Same as 214.363.

214.364 Chinese Philosophy 1 3 a.h.
Introduction to Chinese philosophy. Same as 214.364.

214.365 Chinese Philosophy 2 3 a.h.
Introduction to Chinese philosophy. Same as 214.365.

214.366 Art of Japan 3 a.h.
A chronological and geographical survey of Japanese art, focusing on its history, development, and influence on modern art. Same as 214.366.

214.367 Chinese Calligraphy and Painting 1 3 a.h.
Survey of Chinese calligraphy and painting. Same as 214.367.

214.368 Chinese Calligraphy and Painting 2 3 a.h.
Survey of Chinese calligraphy and painting. Same as 214.368.

214.371 Chinese Religion 3 a.h.

214.372 Religion in China 3 a.h.
Survey of Chinese religion. Same as 214.372.

214.373 Religion in Japan 3 a.h.
Survey of Japanese religion. Same as 214.373.

214.374 Religion in China 3 a.h.

214.375 Religion in Japan 3 a.h.
Survey of Japanese religion. Same as 214.375.

214.376 Religion in China 3 a.h.
Survey of Chinese religion. Same as 214.376.

214.377 Religion in Japan 3 a.h.

214.378 Religion in China 3 a.h.

214.379 Religion in Japan 3 a.h.

214.381 Religion in China 3 a.h.
Survey of Chinese religion. Same as 214.381.

214.382 Religion in Japan 3 a.h.
Survey of Japanese religion. Same as 214.382.

214.383 Religion in China 3 a.h.

214.384 Religion in Japan 3 a.h.

214.385 Religion in China 3 a.h.

214.386 Religion in Japan 3 a.h.
Survey of Japanese religion. Same as 214.386.

214.387 Religion in China 3 a.h.
Survey of Chinese religion. Same as 214.387.

214.388 Religion in Japan 3 a.h.

214.389 Religion in China 3 a.h.

214.390 Religion in Japan 3 a.h.

214.391 Religion in China 3 a.h.

214.392 Religion in Japan 3 a.h.
Astronomy

See “Physics and Astronomy.”

Biochemistry

Acting head: Charles A. Swanson
Degree offered: B.A., B.S., M.S., Ph.D.

Biochemistry is the study of the basic chemical processes that occur in all living systems. It is currently one of the most active sciences, and provides a foundation for biology.

Biochemists generally work in laboratories and/or classrooms. Those with the Bachelor’s degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which certification is required.

Biochemists with advanced degrees—often the doctorate/phenomenon teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; and in the food, drug, cosmetics, chemical, petroleum, and allied industries as well as in biotechnology companies.

Undergraduate Programs

Bachelor of Science

The Bachelor of Science program in biochemistry prepares the student, upon graduation, to work as a biochemist in certain positions requiring no further formal training. It is also an excellent base for graduate study in biochemistry and related sciences—of professional degree work in the health sciences.

In addition to the College of Liberal Arts general requirements, the Bachelor of Science degree in biochemistry requires:

22M.35-36 Calculus 1-2 8 s.h.

15H-16S 18 s.h.

Biochemistry electives 18 s.h.

Biochemistry majors, especially in the B.A. program, may qualify for teacher certification by taking additional courses in teacher education. For details consult with an advisor in the College of Education.

Honors Program

Qualified students may earn an honors degree by doing special work in 99:140 Experimental Biochemistry or with usually in 99:125 Research Independent Study. The requirements in a report written is the form of a formal article and is submitted by a special departmental seminar.

Other Combined Programs

It is possible, especially in the B.A. program, to include courses from other disciplines such as business, pre-law, psychology, or journalism, permitting individuals to prepare for one of the many
of vocational is which biochemistry has an influence.

It is also possible for a B.A. student in biochemistry to complete the specified course requirements in three years and satisfy the requirements for the remaining advanced science electives during the first year of dental or medical school.

Graduate Programs, Facilities, Faculty, Courses

See "Biochemistry" in the College of Medicine section of the Catalog for descriptions of the department's graduate programs and facilities, and for its faculty roster and course offerings.

Biography

Chair: John R. Menninger
Associate Professors: Harvey J. Bean, Patricia E. Berning, Donald L. Bourse, Lewis K. Johnson, Richard L. Lemos, Charles G. Whitten, Joan Ziegler
Assistant Professors: Carol A. Buro, James L. Bush, Matthew B. Davis, Charles E. Davis, Aldrich W. Davis, John E. D. Davis
Adjunct Assistant Professors: Kenneth D. Nelson

Degrees offered: B.A., B.S., M.S., Ph.D., jointly administered with the Department of Botany

Graduate Programs

The graduate degree programs in biochemistry are designed to foster students' understanding and appreciation of living organisms and to prepare students for careers in government, industry, or teaching, in health-oriented professions, or related fields. Courses offered in the department also serve students in other fields, including psychology, anthropology, and sociology, as well as students in non-science studies who have a cultural interest in biological science. The undergraduate programs are administered jointly by the departments of Biology and Botany.

Graduates may enter research or service careers at the technical level in educational, governmental, and industrial institutions or foundations. The programs also prepare students for certification or advanced degree programs leading to independent research in biological fields, teaching at all levels, or the health professions—medicine, dentistry, pharmacy, nursing, paramedical practice, medical technology, dental hygiene, and physical therapy.

The basic courses emphasize processes that are unique to organisms: living systems, at molecular, cellular, organismic, and population levels. Later, students may focus their efforts by concentrating elective courses in areas such as genetics, development, physiology, ecology, molecular biology, or plant and animal systems.

Students interested primarily in field biology have simple opportunities for this emphasis through the program in ecology and evolutionary biology and the MacKerron Nature Reserve. Among the courses emphasizing field biology are offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.

Bachelor of Science

Required courses in biology (34 semester hours)

2.1.1 Introduction to Botany 4 s.h.
2.3.7 Principles of Animal Biology 5 s.h.
2.7.12 Fundamental Genetics 3 s.h.
2.7.12 Fundamental Genetics Laboratory 2 s.h.
2.7.13 Evolution 4 s.h.
2.7.15 Cell Physiology 4 s.h.
Electives in biology, botany, microbiology, or geology (palaeontology) 12 s.h.

These courses are cross-listed in the botany department.

The 12 elective semester hours in biology must be in courses numbered 100 or above, but course credits may not be used to meet the requirements for non-science majors. Also, the elective credit may not include more than 3 semester hours in biology and biology honors courses, 2.153 Special Topics, and 2.159 Introduction to Research. The elective courses can include up to 4 semester hours of advanced coursework in the physical sciences (physics, chemistry, geology) in specific courses in the basic science departments of the College of Medicine, or in mathematics courses that have prerequisites as prerequisites. The general goals in choosing these courses are that they be numbered 100 or above and carry elementary course prerequisites; they are primarily for science majors; and do not include the required courses in cognate sciences listed below. Students should consult elective courses in consultation with their advisors.

Required courses in other disciplines (28-29 s.h.)

- 4.13 Principles of Chemistry I 6 s.h.
- 4.13 Principles of Chemistry Laboratory 2 s.h.
- 4.12 Organic Chemistry I 3 s.h.
- 99.10 The Chemistry of Biological Materials 3 s.h.
- 29.11-12 College Physics I 8 s.h.
- 29.17-18 Introductory Thysics I 8 s.h.
- 2.25 Calculus I 4 s.h.
- 2.25 Calculus II 4 s.h.
- 2.25 Calculus III 4 s.h.
- 2.25 Calculus IV 4 s.h.
- 2.25 Calculus V 4 s.h.

Bachelor of Arts

The B.A. program provides more options among the required courses than does the B.S. program. Also, B.A. degrees in the College of Liberal Arts require four college semesters of a foreign language or the equivalent (four years) in high school.

Required courses in biology (25 semester hours)

2.1.1 Introduction to Botany 4 s.h.
2.1.3 Principles of Animal Biology 5 s.h.
- 2.1.8 Fundamental Genetics 3 s.h.
- 2.1.8 Evolution 4 s.h.
- 2.1.8 Adaptation and Natural Selection 4 s.h.

An investigative laboratory course:

2.1.16 Developmental Biology Laboratory 2 s.h.

- 2.1.16 Comparative Physiology Laboratory 2 s.h.

- 2.1.16 Fundamental Genetics Laboratory 2 s.h.

- 2.1.15 Quantitative Field Ecology 5 s.h.

- 2.1.15 Ecological Laboratory 2 s.h.

- 2.1.18 Techniques in Neurobiology 4 s.h.

- 2.1.17 Enzyme Purification and Characterization 4 s.h.

Electives in biology, botany, microbiology, or paleontology 11 s.h.

These courses are cross-listed in the botany department.

**Hours in the investigative laboratory course requirement in excess of two may be applied toward elective credit.**

Of the 11 semester hours of elective credit, up to 6 semester hours may be earned in other natural sciences or mathematics. Up to 3 of these 6 semester hours in nonbiological science may be in 26.104 Introduction to Philosophy of Science or 16.133 Science in the Nineteenth and Twentieth Centuries. Other restrictions and limitations in courses to satisfy the elective credit requirement apply as for the B.S. degree.

Required courses in other disciplines (34-36 semester hours)

- 4.13 Principles of Chemistry I 6 s.h.
- 4.13 Principles of Chemistry Laboratory 2 s.h.
- 4.12 Organic Chemistry I 3 s.h.
- 99.10 Biochemistry 3 s.h.
Honors

The honors program in biology gives the superior student membership in a small, active group of undergraduates with common interests. Honors students associate with one of the departments' research groups, gaining an introduction to the pursuit of practicing scientists—experiments, discussions of current research, work on specialized topics, and attendance at research lectures. Students in the College of Liberal Arts Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors course work in the departments of Biology and/or Botany, including at least 2 semester hours in 37196 Honors Laboratory Research or 2196 Honors Laboratory Research at least 2 semester hours in 37197 Honors Readings in Biology or 2197 Honors Readings in Botany and at least 1 semester hour in 37198 Honors Seminar in Biology or a graduate-level seminar. An honors student in biology must maintain at least a 3.2 grade-point average overall and at least a 3.5 average in the biological sciences. A final research paper, approved by the research supervisor, is required.

Introduction to Research

The department offers 37199 Introduction to Research to acquaint students majoring in biology with the nature of practicing scientists' work—through association with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs

The graduate program of the department which is jointly administered by the Department of Botany, are designed to prepare students for different kinds of professional activities, including teaching at various levels; participation in research in private, educational, or government laboratories; and service involving planning or administrative functions. In the last two decades, some 50 Ph.D. graduates of this department have subsequently been engaged in college or university teaching, while most of the others are in research positions. A substantial number of students completing their training in the M.S. degree have obtained technical or professional positions, some in which require independent responsibility in the conduct of research. Others are teaching at the secondary-school level in or community colleges. Prior to registration in August, all new graduate students in biology take a diagnostic examination covering topics in developmental biology, genetics, physiology with an emphasis on cell physiology, evolution, and ecology. On the basis of examination results, students may be excused from further work in one or all of these fields, or may be required to take specific courses to enhance their backgrounds in these areas. Students must make up any deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree outside of the biological sciences may request modification of certain area requirements; the student's degree committee will decide whether portions of the requirements may be waived.

All members of the biology faculty engage in research. Among departmental research projects include cell biology; development biology; genetics; molecular biology; neurobiology; ecology; behavior; physiology; and parasitology. Many projects involve work in other departments; graduate students sometimes are advised jointly by faculty in both departments.

On admission, each new graduate student is assigned a temporary adviser, chosen to complement the research interests of the student. The temporary adviser guides the student through initial requirements and acts as the student's advocate. For purposes of graduate student evaluation, research training is categorized by four designations: developmental biology, ecologv and behavior, genetics, and physiology. A committee of faculty from the area represented by the temporary adviser evaluates the student initially. After a time, students choose a permanent sponsor (adviser) and a Ph.D. advisory dissertation committee. Afterwards, responsibility for evaluation is shared by the dissertation committee and the sponsor's area committee.

Master of Science in Biology

The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis (thesis or original research). Ordinarily, it is to 8 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the advisory committee; the choice of courses is tailored to the student's background and career goals. Students receive credit for courses they are required to take but not for courses required by the admissions committee to make up undergraduate deficiencies. After the thesis is accepted, candidates must pass an oral examination based on the thesis and related subjects.

The M.S. degree without thesis requires 34 semester hours of graduate credit, and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student's thesis committee and are tailored to fit the student's background and career goals. Credit received in courses at the 100 level or above—with the exception of courses in biology required to make up deficiencies revealed by the diagnostic examination

Suggested course schedule for the freshman year

The following schedule is typical for students seeking either the B.S. or B.A. degree in biology.

First Semester

Rhetoric

3 s.h.

Chemistry (413)

3 s.h.

Botany (21)

4 s.h.

Mathematics

3-4 s.h.

Second Semester

Rhetoric or Interpretation of Literature (561)

or General Education Requirement in the humanities

3-4 s.h.

Chemistry (414, 416)

5 s.h.

Foreign language

3-4 s.h.

Mathematics

3 s.h.

Students who work the B.S. degree and who are sufficiently prepared in mathematics to take calculus in their first semester are encouraged to take 33.3 Principles of Animal Biology in their second semester.

Minor

Students majoring in other subjects may earn a minor in biology. The biology minor requires 15 semester hours of credit in biology, botany, microbiology, and/or plant pathology courses taken at The University of Iowa, including at least 12 semester hours in 100-level courses, and excluding those designed primarily for nonscience students. Biology courses taken at other institutions or taken on a pass/fail basis do not apply toward requirements for the biology minor.

99-120: The Chemistry of Biological Materials 3 s.h.

or 2125: Fast Biochemistry 8 s.h.

29-11-12 College Physics 1-2 8 s.h.

or 29-17-18 Introduction to Physics 1-2 8 s.h.

25-45: Trigonometry 3 s.h.

or 226-5 Mathematics for the Biological Sciences 4 s.h.

or 226-10 Elementary Functions 4 s.h.

or 226-16 Calculus for the Biological Sciences 3 s.h.

or 2355: Calculus I 4 s.h.

or 235-55 Engineering Calculus I 4 s.h.

or 225-127 Applied Statistical Methods and Computations 3 s.h.

or 37-109 Quantitative Methods in Biology 3 s.h.

8W-10 Expository Writing (or equivalent) 3 s.h.

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score above 1200. Applicants also should take the Graduate Record Advanced biology test and submit their scores. Although the department prefers applicants who have completed undergraduate programs much like its own, it considers applicants with backgrounds in biophysics, botany, biochemistry, and other related areas.

Facilities

The department is housed in a cluster of contiguous buildings. It has appropriate facilities for the care of many kinds of animals and special facilities for research with viruses, DNA sequencing, fruit flies, plants, and marine organisms. It has numerous walking and running areas, environmental chambers for special cell culture or plant and animal care needs. The department is equipped to carry out research in all the areas in which graduate teaching is conducted. Light microscopes of a variety of types are available, including those with fluorescence, phase contrast and pellicentary optics, and those with florescence. Special facilities exist for the analysis of computerized images and their edition. There are two transmission electron microscopes, including one for teaching and student research purposes, and one with high resolution capabilities. Centrifuges of various sorts, including refrigerated, high-speed, and ultra-high-speed models, are available. Other special equipment includes electronoptics, gas liquid and high-pressure liquid chromatography apparatus; electron amplifying and recording equipment for neurophysiological studies; desk-top computers; gas flow and liquid scintillation and gamma counters for radioisotope detection and analysis; constant temperature bath of various types for metabolism and growth studies; ovens and incubators, recording pharimetry and visible spectrophotometers, densitometer; Coulter counter; instruments for field work; physical ecology; water tables; aquariums; and "instant ocean" microfluidic systems, tissue culture rooms, and heated and cold rooms. Laboratories also are equipped for advanced work that calls for specialized biotechnical, biophysical, cytochemical, or morphologic techniques.

Iowa Lakeside Laboratory

Courses

Primarily for Undergraduates

2000 Cooperative Education Internship 4 hrs.

2100 Introductory Animal Biology 4 hrs.

2140 Advanced animal physiology and function 4 hrs.

2170 Principles of Development 4 hrs.

2172 Development of Neurophysiology 4 hrs.

2173 Development of Behavior 4 hrs.

2174 Development of the Nervous System 4 hrs.

2175 Development of the Endocrine System 4 hrs.

2176 Development of the Immune System 4 hrs.

2177 Development of the Sensory Systems 4 hrs.

2178 Development of the Cardiovascular System 4 hrs.

2179 Development of the Respiratory System 4 hrs.

2180 Development of the Reproductive System 4 hrs.

2181 Development of the Urinary System 4 hrs.

2182 Development of the Digestive System 4 hrs.

2183 Development of the Central Nervous System 4 hrs.

2184 Development of the Peripheral Nervous System 4 hrs.

2185 Development of the Autonomic Nervous System 4 hrs.

2186 Development of the Endocrine System 4 hrs.

2187 Development of the Immune System 4 hrs.

2188 Development of the Sensory Systems 4 hrs.

2189 Development of the Cardiovascular System 4 hrs.

2190 Development of the Respiratory System 4 hrs.

2191 Development of the Reproductive System 4 hrs.

2192 Development of the Urinary System 4 hrs.

2193 Development of the Digestive System 4 hrs.

2194 Development of the Central Nervous System 4 hrs.

2195 Development of the Peripheral Nervous System 4 hrs.

2196 Development of the Autonomic Nervous System 4 hrs.

2197 Development of the Endocrine System 4 hrs.

2198 Development of the Immune System 4 hrs.

2199 Development of the Sensory Systems 4 hrs.

2200 Development of the Cardiovascular System 4 hrs.

2201 Development of the Respiratory System 4 hrs.

2202 Development of the Reproductive System 4 hrs.

2203 Development of the Urinary System 4 hrs.

2204 Development of the Digestive System 4 hrs.

2205 Development of the Central Nervous System 4 hrs.

2206 Development of the Peripheral Nervous System 4 hrs.

2207 Development of the Autonomic Nervous System 4 hrs.

2208 Development of the Endocrine System 4 hrs.

2209 Development of the Immune System 4 hrs.

2210 Development of the Sensory Systems 4 hrs.

2211 Development of the Cardiovascular System 4 hrs.

2212 Development of the Respiratory System 4 hrs.

2213 Development of the Reproductive System 4 hrs.

2214 Development of the Urinary System 4 hrs.

2215 Development of the Digestive System 4 hrs.

2216 Development of the Central Nervous System 4 hrs.

2217 Development of the Peripheral Nervous System 4 hrs.

2218 Development of the Autonomic Nervous System 4 hrs.

2219 Development of the Endocrine System 4 hrs.

2220 Development of the Immune System 4 hrs.

2221 Development of the Sensory Systems 4 hrs.

2222 Development of the Cardiovascular System 4 hrs.

2223 Development of the Respiratory System 4 hrs.

2224 Development of the Reproductive System 4 hrs.

2225 Development of the Urinary System 4 hrs.

2226 Development of the Digestive System 4 hrs.

2227 Development of the Central Nervous System 4 hrs.

2228 Development of the Peripheral Nervous System 4 hrs.

2229 Development of the Autonomic Nervous System 4 hrs.

2230 Development of the Endocrine System 4 hrs.

2231 Development of the Immune System 4 hrs.

2232 Development of the Sensory Systems 4 hrs.

2233 Development of the Cardiovascular System 4 hrs.

2234 Development of the Respiratory System 4 hrs.

2235 Development of the Reproductive System 4 hrs.

2236 Development of the Urinary System 4 hrs.

2237 Development of the Digestive System 4 hrs.

2238 Development of the Central Nervous System 4 hrs.

2239 Development of the Peripheral Nervous System 4 hrs.

2240 Development of the Autonomic Nervous System 4 hrs.

2241 Development of the Endocrine System 4 hrs.

2242 Development of the Immune System 4 hrs.

2243 Development of the Sensory Systems 4 hrs.

2244 Development of the Cardiovascular System 4 hrs.

2245 Development of the Respiratory System 4 hrs.

2246 Development of the Reproductive System 4 hrs.

2247 Development of the Urinary System 4 hrs.

2248 Development of the Digestive System 4 hrs.

2249 Development of the Central Nervous System 4 hrs.

2250 Development of the Peripheral Nervous System 4 hrs.

2251 Development of the Autonomic Nervous System 4 hrs.

2252 Development of the Endocrine System 4 hrs.

2253 Development of the Immune System 4 hrs.

2254 Development of the Sensory Systems 4 hrs.
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<tbody>
<tr>
<td>27.351 Virus and Organsim Anatomy</td>
<td>3</td>
<td>A study of the general principles of development of the virus, including the role of the host in the replication process, and the impact of viruses on human and veterinary medicine.</td>
<td></td>
</tr>
<tr>
<td>27.353 Principles of Plant Pathology</td>
<td>3</td>
<td>Principles of plant pathology, including the study of diseases caused by pathogens, such as fungi, bacteria, and viruses.</td>
<td></td>
</tr>
<tr>
<td>27.354 Ecological Systematics</td>
<td>3</td>
<td>The study of the distribution and abundance of species within ecosystems.</td>
<td></td>
</tr>
<tr>
<td>27.356 Advanced Techniques in Field Microscopy</td>
<td>3</td>
<td>Techniques in field microscopy, including the use of confocal microscopy and scanning electron microscopy.</td>
<td></td>
</tr>
<tr>
<td>27.357 Seashore Ecololgy</td>
<td>3</td>
<td>A study of the seashore ecosystem, including the interactions between organisms and their environment.</td>
<td></td>
</tr>
<tr>
<td>27.358 Principles of Soil Science</td>
<td>3</td>
<td>Principles of soil science, including soil formation, classification, and management.</td>
<td></td>
</tr>
<tr>
<td>27.359 Environmental Geology</td>
<td>3</td>
<td>The study of the relationship between the earth's crust and the environment.</td>
<td></td>
</tr>
<tr>
<td>27.361 Introduction to Geology</td>
<td>3</td>
<td>An introduction to the study of the earth's history and processes.</td>
<td></td>
</tr>
<tr>
<td>27.362 Modern Geology</td>
<td>3</td>
<td>A study of the modern geological processes, including plate tectonics and the formation of the earth's surface.</td>
<td></td>
</tr>
<tr>
<td>27.363 Advanced Techniques in Field Microscopy</td>
<td>3</td>
<td>Advanced techniques in field microscopy, including the use of advanced imaging techniques.</td>
<td></td>
</tr>
<tr>
<td>27.364 Advanced Techniques in Field Microscopy</td>
<td>3</td>
<td>Advanced techniques in field microscopy, including the use of advanced imaging techniques.</td>
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**Botany**

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<td>27.366 Advanced Botany</td>
<td>3</td>
<td>Advanced topics in botany, including the study of plant diversity and evolution.</td>
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**Biological Science**

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<td>3</td>
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<td>3</td>
<td>Advanced topics in botany, including the study of plant diversity and evolution.</td>
<td></td>
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<td>3</td>
<td>Advanced topics in botany, including the study of plant diversity and evolution.</td>
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**Biological Science**

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<td>Advanced topics in botany, including the study of plant diversity and evolution.</td>
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<td>27.375 Advanced Botany</td>
<td>3</td>
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<td>Advanced topics in botany, including the study of plant diversity and evolution.</td>
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**Biology Degree Programs**

Undergraduate and graduate degree programs in biology are administered jointly by the departments of biology and biological sciences. Undergraduate degree offerings include the Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Master of Science (M.S.), and the Doctor of Philosophy (Ph.D.), both for both B.A. and B.S. degrees. Undergraduate students are encouraged to take additional courses in biology and related disciplines, as well as courses that will prepare them for careers in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant breeding, microbiology, the chemical and natural products, ecology, medicine, environmental law, and pharmacy.
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Mathematics Requirement

22M:15 Mathematics for the Biological Sciences 4 s.h.
or
22M:19 Elementary Functions 3 s.h.

A statistics course:
22S:102 Introduction to Statistical Methods 3 s.h.
(or an equivalent course.)

Bachelor of Arts

The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S.

In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

Botany and Biology Requirements:

2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
2128 Functional Genetics 3 s.h.
2113 Plant Anatomy 4 s.h.

One course from each of the following four areas (17-20 semester hours):

Physiology and Cell Biology

2141 Plant Physiology 4 s.h.
2110 Plant Physiology 4 s.h.
2114 Cellular Plant Physiology 3 s.h.
2125 Plant Biochemistry 3 s.h.
37:103 Cell Physiology 4 s.h.

Vascular Plant Diversity

2110 Vascular Diversity 4 s.h.
2112 Biology of Vascular Plants 3 s.h.
2118 Plant Taxonomy 4 s.h.
2115 Winter Flora 3 s.h.
2110 Paleobotany 4 s.h.
1110 Plant Taxonomy 5 s.h.

Ecology and Evolution

2111 Plant Ecology 4 s.h.
37:110 General Ecology 4 s.h.
2114 Evolution 4 s.h.
2116 Field Ecology 4 s.h.

Biology of Non-Vascular Plants

2112 Algae and Fungi 4 s.h.
2115 Botany 4 s.h.
2106 Bryology-Lichenology 4 s.h.
2107 Mycology 4 s.h.

The student also must take one 100-level course in botany or cognate sciences.

Chemistry Requirement

413 Principles of Chemistry I 3 s.h.
414 Principles of Chemistry II 3 s.h.
416 Principles of Chemistry Lab 2 s.h.
4121 Organic Chemistry I 3 s.h.
4122 Organic Chemistry II 3 s.h.
or
95110 Biochemistry 3 s.h.
or
99:120 The Chemistry of Biological Materials 3 s.h.

Mathematics Requirement

One of the following courses; students should consult advisor:
22M:15 Mathematics for the biological sciences
22M:18 Calculus for the Biological Sciences 4 s.h.
22M:19 Elementary Functions 3 s.h.
22M:25 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

Honors

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by faculty members.

In addition to the regular requirements for the B.A. and B.S. degrees, honors students must:

Maintain an overall grade-point average of 3.2.
Maintain a minimum grade-point average of 3.2 in all botany and biology courses.
Complete 4-6 semester hours of honors course work with a minimum of 4 semester hours of Honors Research (2116).

Present a written research report (honors thesis), which has been approved by the student's research supervisor, to the botany honors advisor; and

Defend his or her honors thesis before a committee composed of the botany honors research advisor, the student's research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor

The botany minor requires 15 semester hours of credit in botany. At least 12 of these semester hours must be taken at The University of Iowa in courses numbered 2100 and above.

Graduate Programs

An advanced degree enhances career opportunities in botany. The department offers advanced degree work in anatomy, botany, cell biology, ecology, genetics, development, and morphogenesis, mycology, paleobotany, physiology, plant biochemistry, and taxonomy. Graduate training frequently involves interdisciplinary study requiring some course work in cognate departments. Each graduate student is assigned a faculty guidance committee to help him or her set educational goals and plan the course requirements necessary to meet them.

Master of Science in Botany

The botany department offers two different M.S. degrees: one with thesis and one without. The M.S. with thesis places greater emphasis on independent research and less on formal course work. It is intended primarily for candidates who have a strong course background in botany or biology.

Master's Degree without Thesis

Each student must:

Submit a program of study approved by a guidance committee comprising three members of the graduate faculty, one of whom may be from another department; the program of study should be prepared during the first semester in residence as a regular graduate student;
Complete at least 34 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee; six hours of research (225) are required; additional research hours may be taken, but no more than six may be counted toward the 34 hour requirement;
Achieve a grade-point average of 3.0 on all courses—other than research—completed prior to the final examination;
Pass a written examination during the term in which he or she is to graduate (individual committee members may opt not to make a written examination clear area), followed within a week by an oral examination; these examinations cover the courses and research experience the student has had.

Master's Degree with Thesis

Each student must:
Submit a program of study (+ for the M.S. without thesis, above);
Complete at least 36 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee; nine hours of research and thesis (225 and 225R) are required; additional research hours may be taken, but no more than five may be counted toward the 36-hour degree requirement;
Achieve a grade-point average of 3.0 on all courses—other than research—attempted up to the time of the final examination;
Prepare a thesis on research conducted;
Defend the thesis in an examination during the term in which he or she is to graduate.
Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. It may be earned after the student has conducted original research of sufficient magnitude and value to allow a thesis to be written and successfully defended before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by his or her guidance committee. Hours earned for the master's degree may be counted toward the 72 semester hour minimum. The guidance committee also may require that course work beyond the 72 semester hours be taken to meet specific proficiency requirements (e.g. language or statistics) or to make up for background deficiencies (e.g. chemistry or general botany course work).

Specific degree requirements are as follows; the student must:

Submit a program of study for the Ph.D. to a guidance committee during the first semester in residence as a Ph.D. candidate; the program must be approved by the guidance committee;

Fulfill all course work requirements of the program above; changes may be made only with the formal (written) approval of the guidance committee;

Complete an initial research proposal within two or three semesters after admission to the Ph.D. program (i.e. post-M.S.), the proposal, which should outline the specific objectives, significances, and methodology of the chosen research project, should gain written acceptance from members of the guidance committee; subsequently, copies of the accepted proposal will be distributed to the candidate to all faculty members of the botany department;

Give an oral presentation of the proposed research work to members of the botany department within a six-month period following acceptance of the initial research proposal, the candidate thereby will be eligible for 1 semester hour credit under 2221;

Seminar Botany (see sections on botany seminars);

Pass a written and oral comprehensive examination when formal course work has been completed or nearly completed;

Submit a doctoral thesis based on original research to the final examination committee for review;

Pass the final doctoral examination which is primarily a defense of the data, methods, and significance of the doctoral thesis;

Graduate Admission

University requirements

An application form for admission to the Graduate College must be completed and sent to the Director of Admissions. The University of Iowa, Iowa City, Iowa 52242. Official transcripts from each undergraduate and graduate institution attended and scores on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative parts) should be submitted with the application. A valid B.S. or B.A. degree from an accredited institution is required.

Departmental requirements

Masters Degree Program:

A cumulative grade-point average of at least 3.0 on all college level work attempted;

A GRE Aptitude Test score (verbal plus quantitative) of 1100 or greater; and

Three letters of recommendation.

For the Ph.D. Program:

A grade-point average of at least 3.4 on graduate work;

A GRE Aptitude Test score of at least 1200;

Three letters of recommendation; and

A master's degree in botany or a biological science.

Financial Aid

New students wishing to apply for assistantships or fellowships may submit an application for graduate awards form when applying for admission to graduate study. The application form may be obtained from the Office of Admissions, the Graduate College, or the departmental office. Applications for teaching assistantships are reviewed by the faculty, those for research assistantships and fellowships are reviewed by the Graduate College, upon recommendation by the department faculty. The kinds and amounts of support for graduate study in botany, as in other departments, varies from year to year depending on the availability of funds. The types of appointments and support are: teaching assistantships and research assistantships (one-half-time or one-quarter-time), teaching research fellowships (TRF), genetics research fellowships, and other sources of support.

Teaching and research assistantships. Appointment to an assistantship requires that the student provide approximately 20 hours per week for work. Appointees pay resident tuition rates.

Teaching-research fellowships (TRF). Teaching-research fellowships are the most liberal awards available. The award is made for four years for beginning graduate students and three years for students who have an M.S. degree. They carry a stipend for 12 months plus waiver of tuition. Appointees serve the department either as one-half-time teaching or research assistant for two or three years. The final year of appointment is free of service requirements, permitting a student to devote full time to research or thesis writing. The Graduate College requires that teaching-research fellowships be awarded to students from other countries or students from the University of Iowa who have not taken graduate work.

Genetics research assistantships are supported by the interdepartmental genetics program from University funds. Appointees whose thesis project is primarily concerned with genetics are eligible to apply.
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Summer appointments depend on available summer courses. The department has awarded as many as four teaching and four research assistantships in recent summer sessions. Summer session stipends are two-thirds of the academic year salary. Awards are made for one-half-time service or 25 hours of time per week for the eight week summer session. Selection of teaching assistants for the summer is made by the instructor in charge of the course to be served.

Faculty members with individual grants-in-aid may wish to employ one-half-time or one-quarter-time research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from departmental resources. Graduate College and departmental regulations and standards apply to these appointments.

Grants-in-aid for graduate students. Agencies such as NIH, NSF, and Sigma Xi make grants-in-aid to graduate students. Assurances of availability are made from time to time. Students should consult the department chair for details. The Graduate College also provides information regarding grants available to graduate students.

Special Facilities and Activities

There is an excellent departmental library in the Biological Sciences Building. A number of research laboratories are equipped with standard and more sophisticated apparatus for research in botany, biochemistry, physiological studies, ecophysiological studies, genetics, and cell biology. There are two transmission electron microscopes in a special facility available to graduate students and staff may use the scanning electron microscope laboratory in the Bowen Science Building.

A number of research laboratories are available. One of the most significant is the Department of Botany's herbarium, which includes extensive collections of seed plants and ferns from Iowa and the Midwest, and there are special research specimens from Mexico and Central America. The Conrad herbarium of bryophytes, and a growing repository of fossil pollen. A forest reserve is available within a few miles of the campus for field trips and experimental projects. A biological field station at Iowa Lakeside Laboratory on West Lake (Stilts) in northwest Iowa offers a wide range of conditions for research and special facilities in botany, biology, zoology, physiology, aquatic ecology, and plant taxonomy (see "Iowa Lakeside Laboratory" in this section of the Course Guide). Students frequently participate in field expeditions in Mexico and Central America. Qualified graduate students may use the Weeg Computing Center in their research projects.

Courses

Primarily for Undergraduates

2.1 Introduction to Botany 4 a.h.

3.2 Iowa Flora 2 a.h.

3.3 Botany of the Local Flora 3 a.h.

3.4 Plant Proportion 2 a.h.

3.5 Spring Flora 2 a.h.

3.6 Plants and Human Affairs 2 a.h.

3.7 Plant Diversity 4 a.h.

3.8 Plant Taxonomy 4 a.h.

3.9 Algae and Fungi 2 a.h.

3.10 Introductory Genetics 3 a.h.

3.11 Plant Physiology 3 a.h.

3.12 Bryology-Wetland Botany 2 a.h.

3.13 Plant Taxonomy 4 a.h.

3.14 Iowa Flora 2 a.h.

3.15 Botany of the Local Flora 3 a.h.

3.16 Plant Proportion 2 a.h.

3.17 Spring Flora 2 a.h.

3.18 Plants and Human Affairs 2 a.h.

3.19 Plant Diversity 4 a.h.

3.20 Plant Taxonomy 4 a.h.

3.21 Algae and Fungi 2 a.h.

3.22 Introductory Genetics 3 a.h.

3.23 Plant Physiology 3 a.h.

3.24 Bryology-Wetland Botany 2 a.h.

3.25 Plant Taxonomy 4 a.h.

3.26 Iowa Flora 2 a.h.

3.27 Botany of the Local Flora 3 a.h.

3.28 Plant Proportion 2 a.h.

3.29 Spring Flora 2 a.h.

3.30 Plants and Human Affairs 2 a.h.

3.31 Plant Diversity 4 a.h.

3.32 Plant Taxonomy 4 a.h.

3.33 Algae and Fungi 2 a.h.

3.34 Introductory Genetics 3 a.h.

3.35 Plant Physiology 3 a.h.

3.36 Bryology-Wetland Botany 2 a.h.

3.37 Plant Taxonomy 4 a.h.

3.38 Iowa Flora 2 a.h.

3.39 Botany of the Local Flora 3 a.h.

3.40 Plant Proportion 2 a.h.

3.41 Spring Flora 2 a.h.

3.42 Plants and Human Affairs 2 a.h.

3.43 Plant Diversity 4 a.h.

3.44 Plant Taxonomy 4 a.h.

3.45 Algae and Fungi 2 a.h.

3.46 Introductory Genetics 3 a.h.

3.47 Plant Physiology 3 a.h.

3.48 Bryology-Wetland Botany 2 a.h.

3.49 Plant Taxonomy 4 a.h.

3.50 Iowa Flora 2 a.h.

3.51 Botany of the Local Flora 3 a.h.

3.52 Plant Proportion 2 a.h.

3.53 Spring Flora 2 a.h.

3.54 Plants and Human Affairs 2 a.h.

3.55 Plant Diversity 4 a.h.

3.56 Plant Taxonomy 4 a.h.

3.57 Algae and Fungi 2 a.h.

3.58 Introductory Genetics 3 a.h.

3.59 Plant Physiology 3 a.h.

3.60 Bryology-Wetland Botany 2 a.h.

3.61 Plant Taxonomy 4 a.h.

3.62 Iowa Flora 2 a.h.

3.63 Botany of the Local Flora 3 a.h.

3.64 Plant Proportion 2 a.h.

3.65 Spring Flora 2 a.h.

3.66 Plants and Human Affairs 2 a.h.

3.67 Plant Diversity 4 a.h.

3.68 Plant Taxonomy 4 a.h.

3.69 Algae and Fungi 2 a.h.

3.70 Introductory Genetics 3 a.h.

3.71 Plant Physiology 3 a.h.

3.72 Bryology-Wetland Botany 2 a.h.

3.73 Plant Taxonomy 4 a.h.

3.74 Iowa Flora 2 a.h.

3.75 Botany of the Local Flora 3 a.h.

3.76 Plant Proportion 2 a.h.

3.77 Spring Flora 2 a.h.

3.78 Plants and Human Affairs 2 a.h.

3.79 Plant Diversity 4 a.h.

3.80 Plant Taxonomy 4 a.h.

3.81 Algae and Fungi 2 a.h.

3.82 Introductory Genetics 3 a.h.

3.83 Plant Physiology 3 a.h.
Graduate Programs

Master of Science

The department offers the M.S. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. degree must demonstrate competence in the graduate level in analytical, inorganic, organic, and physical chemistry by passing specific examinations (given twice a year) or by enrolling in an equivalent graduate course. This requirement must be completed by the end of the first year of enrollment. Formal graduate course work includes at least two courses in an area of specialization and four additional graduate courses. A minimum grade-point average of 2.5 is required for admission to the master's examination.

Doctor of Philosophy

A program of study for the Ph.D. degree in the areas listed for the M.S. degree includes the undergraduate competency examinations, courses required for the M.S. degree, additional courses which may be required by the thesis advisor, research and research courses. Students have met the course requirements with a cumulative grade-point average of 3.0 are admitted to the oral comprehensive examination following their preliminary and final examinations of their written research proposal. The oral comprehensive examination must be taken no later than the end of the second year of enrollment.

Upon completion of the Ph.D. research, the student may, in consultation with the thesis advisor, petition the Graduate Committee to have the final examination consist of an oral defense of the thesis. At this time a manuscript of the publishable portion of the thesis is submitted.

Interdisciplinary Programs

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematics and in chemical physics. The Graduate Committee in the Catalog states that students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Admission

An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students who are admitted receive financial support, and application forms may be obtained by writing to the Department of Chemistry.

Facilities

The department is housed in a five-story building containing two auditors, 9 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instrumental rooms. Modern scientific equipment is available for research. The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemical and electrical engineering journals, and subscribes to a large number of current scientific journals.

Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 413, 414, and 415. Students planning to take only one year of chemistry should take 413 or 414. Credit is given for only one of the following courses: 401, 402, or 403.

400 Cooperative Education Internship

540 Chemistry and Society

Inorganic, Physical, or Analytical Chemistry Laboratory Experiences of Selected Areas of Chemistry: Basic Science Background; calculus, thermodynamics, applications, implications, for scientific fields. (Offered for 4.0 or 5.0 units; 4.0 units without laboratory.)"
Primarily for Graduates

6301 Special Topics in Inorganic Chemistry 3 h.
Advanced course of short-term nature emphasizing a field of interest in inorganic chemistry. Topics change annually. May be repeated for credit. Prerequisites: 4304 and 4305.

6302 Coordination Compounds 3 h.
Introduction to inorganic chemistry, physical properties, and structures of metals formed by coordination of donor molecules with various other elements. Prerequisites: 5.113.

6303 Organometallic Chemistry 3 h.
General theory of organometallic chemistry with emphasis on the organometallic compounds of the transition metal elements. Prerequisite: 5.113.

6306 Physical Methods in Inorganic Chemistry 3 h.
Application of physical methods to problems in inorganic chemistry, with emphasis on recent developments. Prerequisite: 5.113.

6308 Introduction to Analytical Chemistry 3 h.
Laboratory methods and techniques for the analysis of organic and inorganic substances. Prerequisite: 5.113.

6310 Analytical Spectroscopy 3 h.
Theory and practice of qualitative and quantitative analysis of inorganic, organic, and biological samples. Includes ultraviolet, and infrared absorption; radioactive; x-ray; and mass spectrometric techniques. Prerequisite: 5.117.

6312 Chemical Thermodynamics 3 h.
Theories and practice of thermodynamic systems. Ideal gas, solution, and electrochemical potentials. Prerequisites: 5.113.

6316 Inorganic Synthesis 3 h.
Synthesis of functional materials for use in industry and the environment. Prerequisite: 5.113.

6321 Statistical Thermodynamics 3 h.
Fundamental principles of statistical thermodynamics and statistical chemistry. Prerequisite: 5.113.

6322 Statistical Thermodynamics II 3 h.
Advanced topic in statistical thermodynamics. Prerequisite: 5.113.

6331 Quantum Chemistry I 3 h.
Quantum mechanics, molecular structure, and properties of simple and complex molecules. Prerequisite: 5.113.

6332 Quantum Chemistry II 3 h.
Group Theory, molecular vibrations and nuclear motion. Prerequisites: Theoretical Mechanics. Prerequisite: Physics 5.103.

6342 Physical Chemistry Topics 1-3 h.
Survey of current topics in physical chemistry not covered in other courses. Prerequisite: 5.113.

6343 Diffusion Analysis 1-3 h.
Theory and methods of solution of diffusion, reaction, and flow in porous, fractal, and cellular anisotropic media. Prerequisites: 5.113.

6344 Interim Research in Chemistry 1-3 h.
Research projects in chemistry under the direction of a departmental faculty member. Prerequisites: 5.113.

6345 Research in Chemistry 1-3 h.
Research projects in chemistry under the direction of a departmental faculty member. Prerequisites: 5.113.

6348 Research in Chemistry 1-3 h.
Research projects in chemistry under the direction of a departmental faculty member. Prerequisites: 5.113.

6349 Research in Chemistry 1-3 h.
Research projects in chemistry under the direction of a departmental faculty member. Prerequisites: 5.113.

6350 Research in Chemistry 1-3 h.
Research projects in chemistry under the direction of a departmental faculty member. Prerequisites: 5.113.

Undergraduate Program

A Bachelor of Arts in classics provides a solid foundation for graduate work in law, history, art, philosophy, religion, and classics. Basic training in the ancient secondary school and university teachers, libraries, museums, curators, and bankers.

Major in Greek

Graduates with a major in Greek know not only how to read and understand ancient Greek literature, but also know some of the major works of Greek literature and something about the history of the ancient world. The major in Greek is designed to acquaint students with the major Greek and Latin authors. The courses, or their equivalents, are required.

141-1 Elementary Greek 5 h.
141-1 Second-Year Greek 5 h.
141-12 Homer and Herodotus II 5 h.
143-1 Greece and Persia 3 h.
143-12 Fifth-Century Athens 3 h.
144-1 Elementary Greek Composition 3 h.

Major in Latin

Graduates with a major in Latin know how to read and understand ancient Latin literature. They have a solid foundation in the ancient world and are able to read and understand ancient Latin literature. The courses, or their equivalents, are required.

201-1 Elementary Latin 8 h.
201-12 Intermediate Latin 4 h.
201-16-17 Intermediate Latin I-II 8 h.
201-20 Age of Cicero 3 h.
202-10 Age of Augustus 3 h.
203-17 Elementary Latin Composition 3 h.

Two Latin language courses 100- level or above 6 h.

Major in Classics (Greek and Latin)

The B.A. degree with a major in classics requires a minimum of 36 semester hours of credit, of which must be in Greek and Latin language courses. The following courses, or their equivalents, are required.

141-1 Elementary Greek 5 h.
141-12 Second-Year Greek 5 h.
251-2 Elementary Latin 8 s.h.
251-17 Intermediate Latin I-II 6 s.h.
1421-1222 Intermediate courses in art, history, or Latin 6 s.h.
2081 Age of Cicero 3 s.h.
2082 Age of Augustus 3 s.h.
14171 Elementary Greek Composition 5 s.h.
or
20171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization
This major is sponsored by the schools of Art and Art History and Religion and the departments of Classics and History. The major concentrates in the ancient civilizations of the Mediterranean world and draws on courses offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it provides a sound basis for preparing teachers at the secondary and junior college level. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major.

Ancient art 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics (either Classics in English courses, or Latin or Greek language courses) 6 s.h.
Ancient civilization to the philosopher, religion, or linguistics 3 s.h.
14194 Seminar in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who earn a 3.5 grade-point average in their first three years of classics courses and are offered in honors reading, one each semester of the senior year, for 3 semester hours of credit each semester. The readings are done under the supervision of the student's advisor or a soil in ancient history or literature. Honors reading is assigned by the instructor and the advisor. During the first semester students present an essay every other week; at the end of the second semester students present a long paper, which is examined by at least three members of the department.

Minors
Requirements for a minor in classics are a minimum of 15 semester hours, at least 12 of which are in advanced courses taken at The University of Iowa. Students take a minor in the department in the areas of Greek, Latin, classics, and ancient civilization. The following courses are considered advanced for the minor:

Greek
1411-12 Second-Year Greek 6 s.h.
All courses numbered 1411-12 or higher and courses numbered 1410-120 do not count toward the minor, because they are not courses in Greek language.

Latin
2016-17 Intermediate Latin I-II 6 s.h.
2081 Age of Cicero 3 s.h.
2082 Age of Augustus 3 s.h.
All courses numbered 2016-121 or higher do not count toward the minor, because they are not courses in Latin language.

Classics
144-12 Second-Year Greek 6 s.h.
2081-17 Intermediate Latin I-II 6 s.h.
2082 Age of Cicero 3 s.h.
2084 Age of Augustus 3 s.h.

These courses or their equivalents are required for the minor in classics, so that students will have both Greek and Latin.

Ancient Civilization
All courses numbered 1410-100, 20100, or higher, appropriate courses from the schools of Art and Art History and Religion and the departments of History and Philosophy, as selected by the interdepartmental committee on the major in ancient civilization.

426 Introduction to Ancient Art 3 s.h.
2081 Age of Cicero 3 s.h.
2082 Age of Augustus 3 s.h.

Language for Nonmajors
Students who want to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 141-12 Elementary Greek and 1411-12 Second-Year Greek. Students who want to meet the requirement by studying Latin may elect 201-15 Elementary Latin or 2015 Accelerated Latin, and 2016-17 Intermediate Latin I-II.

Graduate Programs
For the general requirements of the Graduate College, including the comprehensive examinations, see "Graduate College" section of the Catalog. Graduate students in classics may not include in their programs more than 6 semester hours of courses numbered 101-199.

Master of Arts
The department offers the M.A. degree in Latin, Greek, or classics. Candidates must earn a minimum of 30 semester hours of major credit to earn courses numbered 101 and above. Usually, students in the Latin program who have not had Greek are expected to include at least elementary Greek in their programs.

Doctor of Philosophy

Required Courses
A one-semester course in Greek reading (3 s.h.)
A one-semester course in Latin readings (3 s.h.)
Advanced Greek or Latin (3 s.h.) or equivalent

Advanced Latin composition (3 s.h.) or equivalent
Any two of the following three courses:
A 3 s.h. course in Indo-European philology
A 3 s.h. course in Greek philology
Any 3 s.h. graduate-level art course
A total of 42 semester hours of specified courses is required. The minimum graduate college requirement is 72 semester hours; the difference of 30 semester hours is to be made up from regular departmental offerings.

Required Ph.D. Examinations
Preliminary examinations
French competence
German competence
Latin sign (3 s.h.)
Greek sight (1 s.h.)

One sight exam must be taken by the end of the first year of graduate study.

Ph.D. Comprehensive (request for the comprehensive examination must be filed at least three weeks before the date of the examination): candidates have the option of taking examinations in any sequence. Greek (literature in translation or Greek literature in translation or translation of a Greek literary work). Latin (literature in translation or translation of a Latin literary work). Ancient History (4 hours). Written Special field or author (3 hours). Written Oral or written examination (1 hour)

Dissertation

This page seems to be part of a university course catalog or academic program description. It lists various courses and requirements for majors, minors, and graduate programs in ancient civilizations and the classics. The content includes course descriptions, credit hours, and specific requirements for different levels of study, such as undergraduate, graduate, and doctoral courses. The document provides a structured overview of the academic offerings, focusing on the study of ancient languages and civilizations, with an emphasis on Greek and Latin. It also highlights the importance of comprehensive examinations and dissertation requirements for advanced degrees. The document is well-organized, detailing the necessary courses and conditions for students pursuing degrees in classics and ancient civilizations.
Facilities

Extensive collections of classical texts and periodicals in the Main Library and the Art and Art History Library facilitate research in the major areas of Greek and Roman civilization.

The department has a varied collection of edifices on classical subjects, and a small library.

Associated with the department, the classical museum contains valuable collection of coins, vases, and frescoes in facsimile from Mycenae, Rome, and Herculanum.

The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making those facilities available to its faculty and graduates.

Courses

Greek—for Undergraduates

161 Elementary Greek

3 h.

Fundamentals of Attic Greek and basic concepts of Greek civilization.

162 Elementary Greek

4 h.

Anancos from Greek authors. Continuation of 161. Which is prerequisite.

165 New Testament Greek

3 h.

Reading knowledge of New Testament Greek, previous knowledge of Greek is not expected, but facility with Pro- tohellenic, archaic Greek, and Latin is helpful.

166 Modern Greek—Language and Culture I

4 h.

Goes out of 336 College of Liberal Arts foreign language requirements.

167 Modern Greek—Language and Culture II

4 h.

Does not count in College of Liberal Arts foreign language requirements.

168 Modern Greek Languages and Culture

3 h.

Goes out of 336 College of Liberal Arts foreign language requirements.

169 Modern Greek Languages and Culture II

3 h.

Goes out of 336 College of Liberal Arts foreign language requirements.

171 Second-Year Greek

3 h.

Readings in Modern Greek prose and poetry. Prerequisite: 162 or equivalent.

172 First-Year Greek

4 h.

Continuation of 161. Which is prerequisite.

Greek—for Undergraduates and Graduates

1621 Homer and Herodot I

3 h.

For first-year Greek students. Selections from Homer's Odyssey and Iliad withModern's Students and Hesiod and Thucydides in Greek; supplementary readings in English.

1622 Homer and Herodot II

3 h.

Continuation of 1621, which is prerequisite.

1626 Greece and Persia

3 h.

For first-year Greek students, course leading to the Peloponnesian War, course of the war, and its immediate aftermath, Aristocles' Pericles and Xenophon's Helen in Helen in Greek; supplementary readings in English.

1658 Fifth-Century Athens

3 h.

Coverage of fifth-century Athens, the years 500 BCE to 322 BCE, an era of political and social change in Athens and Greece, and material drawn from Athens and Greece. The course will begin with the battle of Marathon in 490 BCE and end with the death of Alexander the Great in 323 BCE.

1681 Isouropodei Latein II

3 h.

Prerequisite: 161 or equivalent.

1682 Age of Crete

3 h.

Cultural and social life of the Minoans in the last few centuries before the rise of Greece, with emphasis on the island of Crete. Prerequisite: 161 or equivalent.

1683 Age of Augustus

3 h.

Life in Rome in the first century B.C. and the empire in the first century A.D. in the life of Rome. Prerequisite: 161 or equivalent.

1684 Latin Undergraduates and Graduates

1677 Accreted Elementary Latin

4 h.

Readings of Latin literature of late antiquity. May be taken by students who have completed 161, 162, 163, or higher. Literature and life.

1678 Punicus and Tarquin

3 h.

Beard of two or three fictional stories of Tarquin, a text which is based on the works of Tacitus, a biography of a famous Roman. Prerequisite: 161 or equivalent.

1680 Late Latin Poetry

3 h.

Reading and critical readings of Latin poetry. Prerequisite: 161 or equivalent.

1681 Medieval Latin

3 h.

Reading and critical reading of Latin poetry. Prerequisite: 161 or equivalent.

1682 Latin Late Classicism

3 h.

Prerequisite: 161.

1683 Romanesque

3 h.

Prerequisite: 161.

1684 Latin Modern

3 h.

Prerequisite: 161.

1685 Advanced Latin

3 h.

Prerequisite: 161.

1686 Late Latin

3 h.

Prerequisite: 161.

1687 Latin Late Classicism

3 h.

Prerequisite: 161.

1688 Latin Modern

3 h.

Prerequisite: 161.

1689 Latin Advanced

3 h.

Prerequisite: 161.

1690 Latin Late Classicism

3 h.

Prerequisite: 161.

1691 Latin Modern

3 h.

Prerequisite: 161.

1692 Latin Advanced

3 h.

Prerequisite: 161.

1693 Latin Late Classicism

3 h.

Prerequisite: 161.

1694 Latin Modern

3 h.

Prerequisite: 161.

1695 Latin Advanced

3 h.

Prerequisite: 161.

1696 Latin Late Classicism

3 h.

Prerequisite: 161.

1697 Latin Modern

3 h.

Prerequisite: 161.

1698 Latin Advanced

3 h.

Prerequisite: 161.

1699 Latin Late Classicism

3 h.

Prerequisite: 161.

1700 Latin Modern

3 h.

Prerequisite: 161.

1701 Latin Advanced

3 h.

Prerequisite: 161.

1702 Latin Late Classicism

3 h.

Prerequisite: 161.

1703 Latin Modern

3 h.

Prerequisite: 161.

1704 Latin Advanced

3 h.

Prerequisite: 161.

1705 Latin Late Classicism

3 h.

Prerequisite: 161.

1706 Latin Modern

3 h.

Prerequisite: 161.

1707 Latin Advanced

3 h.

Prerequisite: 161.

1708 Latin Late Classicism

3 h.

Prerequisite: 161.

1709 Latin Modern

3 h.

Prerequisite: 161.
20:323 Advanced Veg I
Includes-biotechnology. Apples, Grapes, and Georgias
3 x h.
20:325 Advanced Veg II
3 x h.
20:240 Fertilizer
3 x h.
20:243 Phytopath
3 x h.
20:251 Roman Boxer Theory
3 x h.
20:258 Tartez Raising of the washed varieties of Tartez to improve Roman export period.
3 x h.
20:266 Latin
3 x h.
20:373 Latin
Readings in Latin prose and poetry written by Caesars and Christian authors, the August Age and the Medieval period.
3 x h.
20:272 Advanced Latin Composition
3 x h.
20:277 Properties
3 x h.
20:278 Roman Strip
3 x h.
20:279 Latin
3 x h.
20:291 Latin Syntax
3 x h.
20:391 Latin Syntax
3 x h.
30:32 Latin
Introduction to Latin literature.
3 x h.
30:32 Latin
For Phil. candidates with the dissertation.

Classics in English

All readings for these courses are in English; no previous knowledge of Greek or Latin is necessary.

15:111 The Classical Views
Reading and interpretation of the Greek and Latin ideas, the development of poetry, and our effort to understand these ideas to the classical view of human nature.
3 x h.
15:208 Introduction to Ancient Art
2 x h.
3 x h.
15:301 Ancient Greek Civilization
2 x h.
15:303 Women in Antiquity
2 x h.
15:304 Ancient Athletics
2 x h.
15:306 Ancient Athletics
2 x h.
15:308 Comparative and Immortality in Greece and Rome
3 x h.
15:317 Latin and Jewish Views of Justice
2 x h.
15:330 Greek Drama in Translation
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registering for thesis credit, candidates first must choose a faculty member to supervise the project. Then, have a prospectus for the project approved by that faculty member and the departmental thesis advisor. The completed thesis is defended before a committee consisting of the faculty advisor, the departmental thesis advisor, and other members.

Students who enroll in the honors program also are eligible to take any communication studies course with an honors designation by completing an agreement with the course instructor for special work in that course. Forms providing exact instructions may be obtained from the honors advisor.

Graduate Programs

Master of Arts

A student can earn a terminal M.A. degree in the department or a more specialized degree either in one of the divisions or in some combination of divisions.

Departmental requirements for the Master of Arts degree are:

A minimum of 36 semester hours, including:

- At least two courses numbered 700 or above;
- A research thesis, or, for the nonthesis degree, a graduate seminar paper involving significant original research;
- Successful completion of a six-hour written examination, the scope of which is determined by the candidate's division and graduate committee; and
- At least a 3.0 cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is the February 1 preceding, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Education Specialist (for Junior College Teaching)

Departmental requirements for the Education Specialist degree are:

A minimum of 60 semester hours, including:

- 36 hours Introduction to Research; a course in teaching methodology; an approved seminar; and at least 19 semester hours completed in the College of Education graduate program; and
- Successful completion of a research report.

A semester internship is an assigned teaching position;
Satisfactory performance on a nine-hour written examination covering a variety of learning with a grade of at least 60 percent; and
Successful completion of such additional requirements as are specified by the department.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

- A minimum of 84 semester hours of graduate credit, exclusive of dissertation, and including a 12-hour sequence in an approved research field;
- A minimum of 10 semester hours of dissertation credit;
- 36,000 Introduction to Research or its equivalent;
- At least two courses in theory taken within the department, and others as determined by the student's advisor and graduate committee, in conjunction with the student;
- Successful completion of a qualifying, and a predoctoral examination in the student's major research areas;
- A substantial scholarly dissertation;
- A 3.0 minimum cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is the February 1 preceding, for maximum probability of admission. Admissions are made based on composite consideration of the applicant's undergraduate achievement, letters of reference; and other evidence of scholarly potential or achievement, such as Graduate Record Examination (GRE) aptitude test results and samples of scholarly work.

Facilities

The Communication Studies Building, one of the newest facilities on campus, has been designed specifically to meet both research and technical needs. Included are two television studios, a complete video production facility, a film sound stage, a recording studio, among other things, a control room, a control room, and advanced digital audio studio that serves the needs of the media throughout the school. A large pool of equipment is available to support student work in both studio and location settings. Students and scholars have access to a video and film library, an individual viewing area, a lab complex for experimental and survey research, and a computer for research assistance. The Communication Studies Library is one of the best facilities of its kind in higher education.

Interdivisional Courses

30:000 Cooperative Education Internship 1 s.h.
30:005 Community Service Learning 1 s.h.
30:101 Social Research Methods and Analysis 1 s.h.
30:111-112 Introduction to Research Design and Statistical Methodology 1 s.h.
30:118 Communication Theory and Research 1 s.h.
30:169 Honors in Communication Studies 1 s.h.
30:179 Honors in Communication Studies 1 s.h.
30:185 Problem in Communication Studies 1 s.h.
30:199 Independent Study 1 s.h.
30:199 Workshop in Teaching Communication and Forensics 1 s.h.
30:201 Communication Pedagogy 1 s.h.
30:241 Independent Study 1 s.h.
30:300 Introduction to Research 1 s.h.
30:302 Research Methods I: Experimental Design 1 s.h.
30:310 Research Methods II: Quantitative Research Analysis 1 s.h.
30:331 Research Methods III: Qualitative Research Analysis 1 s.h.
30:332 Research Methods IV: Social Science Research Methods 1 s.h.
30:347 Graduate Seminar 1 s.h.
30:399 Ph.D. Dissertation 1 s.h.

Communication Education

Professor in charge: Dianne M. Tark

Degrees offered: B.A., M.A.

The communication teaching major requires a minimum of 33 semester hours of Communication Studies. Students should include the following in their program: 4500 Oral Communication, 4505 Oral Interpretation of Literature, and two courses selected from each of the four departmental undergraduate divisions, with approval of a communication education advisor.

In addition to the secondary education program, education students seek teacher certification in communication and theatre arts also must register for:

75:000 Methods: Communication 3 s.h.
36:100 Methods: Communication 3 s.h.
36:101-102 Observation and Laboratory Practice in the Secondary School 12 s.h.
75:197 Seminar: Curriculum and Student Teaching 2 s.h.

To strengthen both their major and their employment opportunities, students are advised to complete a minor certification in
The department and division sponsor an internship program that provides outside workplace experience, and an active employability program. Students are provided opportunities to apply communication knowledge and skills in a variety of settings, e.g., advertising, public relations, organizational development, personnel, policy, research, and training. In the programs, communication majors and others have the opportunity to expand research skills, to develop improved learning habits, to work on methods for organizing and amplifying ideas, and to use practical communication skills before audiences outside the classroom. Students may choose to work in debate or in a variety of minor events, in various on-campus programs and off-campus activities. Scholarships are available.

Courses

33C1 Majors of Speech Communication

33C2 Bachelor's degree in Communication

33C3 Communication in Public

33C4 Interpersonal Communication

33C5 Group Communication

33C6 Practice in Debate

33C7 Communication and Public Affairs

33C8 Organizational Communication

33C9 Persuasive Communication

33C10 Social Responsibility of Communication

33C11 Research Methods

33C12 History of Speech Communication

33C13 Speech Communication for Business

33C14 Special Topics in Communication

33C15 Internship

33C16 Practicum in Communication

33C17 Student Activities in Communication

33C18 Communications in Law

33C19 Communication and the Law

33C20 Communication and the Law

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33C100 Communication and the Law
Communication Research

Degrees offered: M.A., Ph.D.

The program in communication research leads to the M.A. or the Ph.D. degree. Programs designed for individual students provide background for aid in experience in research on interpersonal communication, group communication, and the mass media from a social science perspective. In addition to general departmental requirements, students take fewer classes in related social sciences and select appropriate courses in the division from those listed below.

Courses

36-305 Contemporary Communication Theory 2-4 s. h.

36-310 Organizational Communication: Theory and Research 3 s. h.

36-315 Organizational Communication: Theory and Research 3 s. h.

36-317 Group Communication: Theory and Research 3 s. h.

36-322 Research Methods in Communication 3 s. h.

36-324 Communication Research 2 s. h.

36-326 Interpersonal Communication Theory and Research 3 s. h.

36-330 Communication in Organizations 3 s. h.

36-396 Research Instrumentation 1-2 s. h.

36-402 Research in Communication Theory and Research 3 s. h.

36-403 Assignments in Communication Research 3 s. h.

36-404 Student Research Project 1-3 s. h.

36-405 Research Seminar 2 s. h.

36-406 Seminar: Language Variables 1-2 s. h.

36-407 Seminar: Communication Research 1-2 s. h.

36-408 Seminar: Rhetorical and Communication Theory 3 s. h.

36-409 Seminar: Organizational Communication Theory 3 s. h.

Ph.D. Seminar in Communication Research 3 s. h.

Rhetorical Studies

Professor in charge: Michael Calvin McGee

Degrees offered: M.A., Ph.D.

The program in rhetorical studies leads either to the M.A. or the Ph.D. degree. It is built upon foundation courses in the history of rhetorical practices, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activities and other dimensions of society. Some foundation courses in history and criticism are offered at the 400-level, and are listed under "Communication" above; the others begin at the 300-level. Foundation courses in rhetorical theory, designed to survey bodies of academic writing about rhetoric, are offered at the 300-level. Advanced courses in special areas of rhetorical theory are offered at the 400-level. Proseminars (300-level) and seminars (600-level) allow students to develop expertise in various historical, critical, and theoretical approaches to rhetoric and communication.

Master of Arts

The M.A. program in rhetorical studies stresses basic knowledge of rhetorical history, criticism, and theory. That goal usually is to test in work in the division and in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students' needs and career goals. Minimal requirements for the M.A. in rhetorical studies include:

36-306 Introduction to Research:

At least 15 semester hours of courses is rhetorical studies, including a seminar (any course numbered 500 or above); at least 6 semester hours of courses in other divisions of this or related departments; and

A comprehensive examination across three areas of study determined by students and their committees.
Broadcasting and Film

p-seminars in charge: Dudley Andrew, Samuel L. Becker, Franklin Miller, M.A., Ph.D.

Bachelor of Arts

This program is intended for students interested in electronic or film media as the focus of a general liberal arts education. The program assumes that anyone pursuing a career in these areas should acquire technical expertise as well but that expertise is an understanding of the main media and their place in culture. Conversely, it assumes that one can understand the history, theory, and criticism of the electronic or film media, totally apart from the experience and knowledge of production.

Students emphasizing production learn how to write, plan, shoot, edit, and present film, radio, and television programs. In addition, students obtain a background in the history of the mass media so that they understand the reasons for the industry's present state and possible alternatives. A grounding in media theory and criticism will teach the student to appreciate what goes into creating a successful work, and to understand the impact that creative and business decisions may have on audience members and on the society at large.

As study areas, theories of aesthetics, culture, and communication all come together in this major, making it an excellent program in which to study people and their creations.

requirements for a major in the division include 300-level instruction in Broadcasting and Film Production, a minimum of 16 semester hours of non-production coursework of which at least 6 semester hours must be in courses numbered 360U or above, and two courses from the Communication division. A total of 24 semester hours is required.

Graduate Programs

Three programs lead to the Master of Arts degree: broadcast and film studies, communication, and organizational communication. Graduate students in broadcast and film studies emphasize critical, theoretical, historical, scientific, and practical-economic issues during their course of study. Production studies candidates develop significant knowledge in these scholarly areas in addition to their creative work in film, television, or radio. The Ph.D. programs in both broadcasting and film are individually tailored by each candidate and an advisory committee/develop research in expertise.

Courses

360-13 Mass Media and Society

Introduction to theories and practices in mass communication, with emphasis on the social scientific study of education, mass newspapers, and media effects. Prerequisites: ECON 101 or permission of instructor.

360-149 Introduction to Broadcasting and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-150 Introduction to Broadcast/Television

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-151 Mass Communication and Society

The role of communication in contemporary society: evolution of the mass media; the role and function of media in society; the media and society; and the role of the media in society. Prerequisites: ECON 101 and permission of instructor.

360-152 Fundamentals of Broadcast-Film Production

Introduction to the theory, history, and critical issues of film production. Emphasis is placed on the history and development of the medium, its influence on society, and the role of the media in society. Prerequisites: ECON 101 and permission of instructor.

360-153 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-154 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-155 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-156 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-157 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-158 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-159 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-160 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-161 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-162 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.

360-163 Television and Film Production

This course is designed to acquaint students with production techniques, equipment, and personnel. Emphasis is placed on film techniques, television production, and electronic media techniques. Prerequisite: successful completion of ECON 101, or permission of instructor.
course work that investigates relationships among various national literatures and relations between literature and other arts (such as film, painting, or translation), as well as by theoretical inquiry into the nature of literature itself. Course work in comparative literature also emphasizes interdisciplinary relations between literature and other areas of study, such as history, philosophy, linguistics, anthropology, law, and psychology.

Degrees in comparative literature do not proceed through a strictly prescribed course curriculum toward the B.A. degree. Working closely with faculty advisors, students develop coherent, individualized programs of study that reflect their own interests and developing skills. In addition to completing General Education Requirements for the B.A. degree, majors complete a minimum of 36 semester hours in courses distributed across three areas as follows.

Comparative Literature
Students should take 18 semester hours of courses as follows:
48-491 Major Tests in World Literature I 6 s.h.
48-520 Non-Western Literary Traditions 3 s.h.
48-492 Undergraduate Seminar 3 s.h.
48-100 Introduction to Critical Problems 3 s.h.
An elective comparative literature course at the 100 level 3 s.h.

Foreign Literature
Students should take 9 semester hours of courses in one foreign literature (read in the original language) beyond those covered in the General Education Requirement in foreign language (one course in Composition and Conversation may count toward the major).

Related Areas
Students should take 6 semester hours of courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature.

Minor
Students exploring in other disciplines may acquire a minor by successfully completing 15 semester hours of work in comparative literature, at least 12 semester hours of which must be in courses at the University of Iowa numbered 48-100 and above. There is no strict foreign language requirement for the minor.

Graduate Programs
Master of Arts
The degree of Master of Arts in comparative literature requires 36 semester hours of study of literature in an international context, concentrating on two or more national literatures and on the theory and study of literature in general. In consultation with faculty advisor, students construct courses in comparative literature and in the individual allied departments to design a coherent program of study.

Final degree requirements may be satisfied by a written examination (oral) taken after students and their advisors have jointly decided on a list of texts to be studied for the examination. The Ph.D. student may be expected to have completed the master's degree requirement by the time he/she reaches the graduate level. The contents of the examination are arranged by the student and his advisor. The student must pass the examination in order to be admitted to candidacy for the Ph.D.

Degree of Doctor of Philosophy
Students seeking the doctorate in comparative literature study at least three literatures: one is studied in historical depth, and two in limited areas of specialization. An interdisciplinary area of concentration is encouraged. All candidates devote a portion of their programs to comparative study that brings the several areas into focus. Specific areas and interrelations of these areas are selected by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:
- European Renaissance
- Romanticism
- Structuralism and Poststructuralism
- Narrative theory in literature and film
- Symbolist poetics and modernist literature
- Oral literature in antiquity and today
- Satire, rhetoric, and the theory of social interaction

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral examination centers on the dissertation and its background.

Admission
The study of literature across linguistic boundaries requires special training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. course of study. Knowledge of at least two foreign languages is a prerequisite for doctoral study.

For further information, consult the procedural guide for graduate students in comparative literature, available from the department offices.

Courses
48-490 Cooperative Education Internship 3 s.h.
48-493 Major Tests in World Literature I 3 s.h.
48-494 Major Tests in World Literature II 3 s.h.
48-495 Non-Western Literary Traditions 3 s.h.
48-496 Introduction to the Literature of Asian, African, and Eastern European traditions 3 s.h.
48-497 Undergraduate Seminar 3 s.h.
48-100 Introduction to Critical Problems 3 s.h.
48-101 Introduction to Film Studies 3 s.h.
48-102 Introduction to Film Studies 3 s.h.
48-103 Introduction to Film Studies 3 s.h.
48-104 Introduction to Film Studies 3 s.h.
48-105 Introduction to Film Studies 3 s.h.
48-106 Introduction to Film Studies 3 s.h.
48-107 Introduction to Film Studies 3 s.h.
48-108 Introduction to Critical Problems 3 s.h.
48-109 Introduction to Critical Problems 3 s.h.
48-110 Introduction to Critical Problems 3 s.h.
48-111 Introduction to Critical Problems 3 s.h.
48-112 Introduction to Critical Problems 3 s.h.
48-113 Literature Course in Emergency Literature I 3 s.h.
48-114 Literature Course in Emergency Literature II 3 s.h.
48-115 Literature Course in Emergency Literature III 3 s.h.
48-116 Literature Course in Emergency Literature IV 3 s.h.
48-117 Literature Course in Emergency Literature V 3 s.h.
school and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers undergraduate degrees—the Bachelor of Science (B.S.) and Bachelor of Arts (B.A.) in the College of Liberal Arts, and the Bachelor of Business Administration (B.B.A.) in the College of Business Administration.

The B.A. and B.B.A. have similar major requirements, but their college requirements differ. The B.B.A. program is designed to provide a background in the business fields of accounting, finance, marketing, business law, and management. The B.S. program is designed to prepare the student for graduate work in economics or related business and technical fields.

The B.A. program is designed for the student seeking a less technical liberal arts background.

Bachelor of Arts

These are the requirements for the B.A. degree with a major in economics:

225:25 Elementary Statistics and Inference or both of the following:
225:17 Quantitative Methods I and 225:08 Quantitative Methods II

Twenty semester hours of credit in 100-level economics courses, including 6E:103 Microeconomics and 6E:105 Macroeconomics.

Most 100-level courses in economics have prerequisites besides 6E:103 (Principles of Microeconomics) and 6E:105 (Principles of Macroeconomics), or senior standing.

Credit in GE:100 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.A. degree.

Bachelor of Science

The B.S. program in economics requires these courses:

225:26-26 Calculus I-II
225:120 Probability and Statistics or 6E:183 Statistical Methods in Econometrics

Twenty semester hours of 100-level economics courses, including 6E:103 Microeconomics, 6E:105 Macroeconomics, and 6E:184 Methods of Quantitative Economics.

Credit earned in GE:100 Price, Employment, and Production Theory or 6E:183 Statistical Methods in Econometrics cannot be counted toward the required 20 semester hours of 100-level course credit.

Minor

The minor in economics requires at least 15 semester hours of credit in economics. Twelve of these semester hours must be taken at The University of Iowa in courses numbered 6E:104 and above.

Honors Program

Students working toward the B.A. or B.S. degree with an economics major are encouraged to take part in the Honors Program in Economics. The Honors Program offers the high-achieving student an opportunity to pursue special research interests.

To enter this program, a student must have maintained a 3.3 grade-point average at degree.

Honors students enrolled in an honors seminar write an honors thesis, and take an oral examination on their honors work. To graduate with honors, a student must maintain a 3.2 grade-point average. Interested students should consult the department honors advisor before the second semester of the junior year.

Bachelor of Business Administration

The program for the B.B.A. degree is described in the "College of Business Administration" section of the Catalog.

Course Work for Nonmajors

For nonmajors, departmental courses (E.) Principles of Microeconomics and (E.) Principles of Macroeconomics satisfy the College of Liberal arts general education requirement in social sciences.

Satisfactory performance in these courses will fulfill the requirement for a major in economics.

Credit in GE:100 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.B.A. degree.

Courses

Primarily for Undergraduates

Note: Economics courses are taken in either order or they may be taken simultaneously. They satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

6E:001 Coop/Internship Internship 3 s.h.
6E:100 Principles of Microeconomics 3 s.h.
6E:102 Principles of Macroeconomics 3 s.h.
6E:103 Microeconomics 3 s.h.
6E:104 Macroeconomics 3 s.h.

A number of students combine relevant majors by double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs

The department offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degree programs. Each program has a separate theory and substantive core enhanced by a set of field courses.

The M.A. degree program is designed to provide breadth in economic training without the requirement of specialization.

The M.A. program can be completed within 18 months.

Within the M.A. program, the department offers concentrations in economics, economic history, economic history of economic thought, international organization, international economics, labor economics, mathematical economics, microeconomics, monetary economics, political economy, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomic theory, microeconomic theory, mathematical economics, and econometrics. In addition, the student selects a wider area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

See "College of Business Administration" section of the Catalog for details on requirements of these degree programs.

Special Seminar

Each year the department offers a seminar program involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Note: Economics courses are taken in either order or they may be taken simultaneously. They satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

6E:001 Coop/Internship Internship 3 s.h.
6E:100 Principles of Microeconomics 3 s.h.
6E:102 Principles of Macroeconomics 3 s.h.
6E:103 Microeconomics 3 s.h.
6E:104 Macroeconomics 3 s.h.

A number of students combine relevant majors by double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

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6E:100 Principles of Microeconomics 3 s.h.
6E:102 Principles of Macroeconomics 3 s.h.
6E:103 Microeconomics 3 s.h.
6E:104 Macroeconomics 3 s.h.

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Each year the department offers a seminar program involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Note: Economics courses are taken in either order or they may be taken simultaneously. They satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

6E:001 Coop/Internship Internship 3 s.h.
6E:100 Principles of Microeconomics 3 s.h.
English and Education

The department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. Students completing this program satisfy the requirements for a general major in English and for teaching certification. Students who wish to be certified to teach English at lower secondary schools should select courses that fulfill the state guidelines for teachers of English in grades seven through twelve.

Literary study for students planning to teach English should emphasize a range of close reading experiences in different kinds of literature (e.g., literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for adolescents, literature of American ethnic groups, literature by women, folklore, and literature, as well as a variety of methods for exploring a literary text). Students planning courses that will help them in their first teaching experiences should remember that they will have to work with details of expression in English. They will need advanced training in writing—nonfiction, fiction, and poetry. The latter is especially important. Many students call for help in learning to write in the English language; information, preparation, and practice are needed in all areas of writing.

Communication skills are also very important; students need to practice speaking and writing at a level that demonstrates understanding of the content of the material. They need to learn how to construct a coherent and well-organized argument or discussion of a topic. Students should also practice critical reading and analysis of texts, including literary criticism. They should be able to identify the main ideas and supporting details of a text, as well as the writer's purpose and tone. Students should also be able to evaluate the validity of an argument or position and to construct their own arguments effectively.

English literature courses, in particular, should emphasize the study of major authors and works. Students should be able to analyze and interpret literary texts, identifying themes, symbols, and other literary devices. They should also be able to understand and appreciate cultural contexts and historical contexts in which the works were created. Students should also be able to write effectively, producing well-organized and well-written essays.
semester hours of course work, students will be required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an advisor, the student will design an approved program of courses. These plans of study may be highly individual, including courses from widely different areas of college and university life, but must be coherently organized around the student's interests and objectives as a writer.

Finally, the student will submit to his or her advisor a proposal for a thesis, which will be an extended paper of exposition or criticism, for an oral examination covering the project, and the dissertation thesis must receive the committee's final approval.

Students interested in this program should consult the director of the M.A. with emphasis in expository writing.

Master of Fine Arts

The purpose of the M.F.A. program is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The requirements, which are flexible, usually include 46 semester hours of graduate credit, earned chiefly in the Writers Workshop, a broad-length collection of poems or short stories or a novel, and satisfactory performance on an examination on modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and serving of American and English literature, but university faculty members. The doctorate requires 72 semester hours of graduate credit, of which at least 30 must be earned in residence at The University of Iowa.

Concentrations are possible in areas of literary history, literary criticism, writing, rhetoric, poetry and stylistics, bibliography, pedagogy, comparative literature, and linguistics.

Requirements for the Ph.D. include:

- Formal written examination by a vote of the full faculty of the department.
- Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature; -
- Three seminars;
- A part-written, part-written comprehensive examination in three areas, one of which must be a historical period of English and American Literature;
- A dissertation, which may be either a scholarly work or a piece of imaginative writing and:

A final examination in defense of the dissertation.

All doctoral candidates are encouraged to gain teaching experience, preferably in the Hibbert and General Education in Literature programs of the College of Liberal Arts.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. Since positions are limited, normally fewer than half of the new doctoral students receive aid. Most, but not all, advanced doctoral students receive support.

Financial aid applications are considered only from students who have been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by February 1 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission

For admission requirements, obtain the hard-bound "Special Requirements and Information/Graduate Admissions" from the English department graduate office, 320 English- Philosophy building.

Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing. In 1952, it became the first institution of higher education to accept creative writing degrees for advanced degree programs.

Presented in 1935, the Writers' Workshop was a pioneer in the field of creative writing. It includes scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teachers-authors, and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1956, brings numbers of prominent literati writers to campus each year. The University of Iowa school of law has a writer in the area of expository writing and rhetorical theory, which is one of the few academic institutions in the nation that offers a full range of graduate course work in this area.

Facilities

The University Library is strong in all areas of English and American literature. In part because of the influence of the Writers Workshop, the library has particular strengths in twentieth-century fiction and poetry, including manuscript collections of twentieth-century authors.

The Zimmerly Reading Room (the departmental library) has a small but select collection of books and journals for use by faculty and students.

Several periodicals are published under the department's name: The Iowa Review, The Myths Quarterly, The Phylon Quarterly Review, and Phinological Quarterly. These indicate other opportunities for especially qualified graduate students as research assistants or editorial associates. The Iowa Journal of Literary Studies is edited by graduate students in the department and features creative and scholarly work by students in English and related areas.

The Windhover Press, which publishes fine editions of works by contemporary authors, is also housed in the department. It offers to qualified students opportunities to learn the art of fine printing.

The Department of English, the Writers Workshop, and the International Writing Program sponsor a rich and extensive series of readings and lectures by poets, fiction writers, and scholars. Heartly a week goes by when there are not two or more such literary events, all of them open to students in the department.

The Association of Graduate Students in English sponsors various 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 of many of the English courses are included because the content and emphasis of many courses varies considerably from one semester to another. Course descriptions for all offerings in a specific semester are available from the English department office well in advance of the beginning of each semester.

General Education Literature

The General Education Requirements in the humanities may be satisfied by taking 9 or 10 hours of literature course work. This includes 3 or 4 hours of introduction to literature and the equivalent of another course (9 or 10) in the humanities, 1 or 2 courses in each of the other courses (9 or 10) through 5.0 or 5.1, and therefore must be taken in English. The pass/credit option is available only for students in the colleges of Nursing and Engineering (with the consent of the student's adviser and the instructor). Anyone wishing to fulfill the
European Literatures
8.180 European Literature of the Nineteenth Century
Same as 45.90.
8.181 European Literature in European Literature I
Same as 48.11.
8.182 Masterspieces of European Literature
Same as 48.12.
8.183 Literary Genres in European Literature
Same as 48.13.
8.184 Auguste to Becquerel
Same as 48.14.
8.185 Duarte and Ronsard Poetry
Same as 48.15.
8.186 Cervantes and Nurse in Translation
Same as 48.16.

Women's Studies
8.190 Regional Women Writers
Same as 121.125.
8.191 Women in Literature
Same as 121.126.
8.192 Changing Conceptions of Women in Literature
Same as 121.127.
8.193 Poe by Women Writers
Same as 121.128.

Literary Genre
Limited to the discussion of a single genre, and usually further restricted to a limited era and nation. These courses are appropriate for any advanced undergraduate or beginning graduate students interested in the area.

Poetry
8.198 Charles
Same as 121.130.
8.199 British Poetry
Same as 121.131.
8.200 American Poetry
Same as 121.132.
8.201 American Poetry
Same as 121.133.
8.202 American Poetry
Same as 121.134.
8.203 The American Sonnet
Same as 121.135.
8.204 The American Novel: From Cooper to Poe
Same as 121.136.
8.205 Contemporary Poetry
Same as 121.137.
8.206 Nineteenth-Century Lyric Poetry
Same as 121.138.
8.207 Poetry by Women Writers
Same as 121.139.

Fiction
8.208 Images of Black Women in Modern American Fiction
Same as 121.140.
8.209 The Narrative Tradition
Same as 121.141.
8.210 The English Novel: Daniel to Austen
Same as 121.142.
8.211 English Novel: Scott to Butler
Same as 121.143.
8.212 American Novel Before 1900
Same as 121.144.
8.213 American Novel Since 1900
Same as 121.145.
8.214 The European Novel 1700 to 1914
Same as 121.146.
8.215 Contemporary Genre in Fiction
Same as 121.147.
8.216 Popular Literatures
8.217 Studio in the Fiction of Afro-American
Same as 121.148.
8.218 Ancient Novel
Same as 121.149.
8.219 Science Fiction I
Same as 121.150.
8.220 Science Fiction II
Same as 121.151.
8.221 Modern African Novel
Same as 121.152.
8.222 American Novel Since 1945
Same as 121.153.

Drama
8.223 Shakespeare
Same as 121.154.
8.224 Selected Drama
Same as 121.155.
8.225 Medieval Drama
Same as 121.156.
8.226 Elizabethan and Jacobean Drama
Same as 121.157.
8.227 Restoration Drama
Same as 121.158.
8.228 Modern Drama: Theatres in Shade
Same as 121.159.
8.229 Modern Drama II
Same as 121.160.
8.230 American Drama
Same as 121.161.
8.231 Shakespeare: Selected Plays
Same as 121.162.
8.232 Shakespeare: Selected Plays
Same as 121.163.
8.233 Shakespeare: Modern Drama
Same as 121.164.
8.234 Shakespeare: Modern Drama
Same as 121.165.
8.235 American Drama
Same as 121.166.
8.236 American Drama
Same as 121.167.
8.237 Non-Fiction Prose
Same as 121.168.
8.238 Non-Fiction Prose
Same as 121.169.
8.239 American Drama Since 1945
Same as 121.170.
8.240 Autobiography
Same as 121.171.
8.241 Autobiography
Same as 121.172.
8.242 Autobiography
Same as 121.173.
8.243 Autobiography
Same as 121.174.
8.244 Autobiography
Same as 121.175.

Thematic Studies
8.245 Selected Themes in Literary Works
Same as 121.176.
8.246 Themes and Modes in Literature by Women
Same as 121.177.
8.247 Themes and Modes in Literature by Women
Same as 121.178.
8.248 Themes and Modes in Literature by Women
Same as 121.179.
8.249 Themes and Modes in Literature by Women
Same as 121.180.

Interdisciplinary
8.251 Literature and Anthropology
Same as 121.181.
8.252 Literature and Politics
Same as 121.182.
8.253 Literature and Psychology
Same as 121.183.
8.254 Literature and Religion
Same as 121.184.
8.255 Literature and Art
Same as 121.185.
8.256 Literature and Film
Same as 121.186.

Writing, Printing, and Design
8.257 Editing and Literary Journal
Same as 121.187.
8.258 The Hand-Printed Book: Problems in Design
Same as 121.188.
8.259 Medieval Manuscript and Handwriting
Same as 121.189.
8.260 History of the Book
Same as 121.190.

Visiting Writers
8.261 The Writer's Pen
Same as 121.191.
8.262 Visiting Writers
Same as 121.192.

Independent Study
8.263 Independent Study
Same as 121.193.
8.264 Independent Study
Same as 121.194.

For Graduates
8.266 Introductory
Same as 121.195.
8.267 Advanced
Same as 121.196.
8.268 Advanced
Same as 121.197.
8.269 Advanced
Same as 121.198.
8.270 Advanced
Same as 121.199.

Literary Periods
8.271 Early Renaissance Literature
Same as 121.200.
8.272 Seventeenth-Century Literature
Same as 121.201.
8.273 Eighteenth-Century Literature
Same as 121.202.
8.274 Nineteenth-Century Literature
Same as 121.203.
8.275 Late Victorian and Edwardes Literature
Same as 121.204.

Medieval and Renaissance
8.276 Literature and Science
Same as 121.205.
8.277 Literature and Psychology
Same as 121.206.
8.278 Literature and Philosophy
Same as 121.207.
8.279 Literature and Art
Same as 121.208.
8.280 Protestantism
Same as 121.209.
8.281 Literature and Society
Same as 121.210.
8.282 Literature and Music
Same as 121.211.

Editing, Printing, and Design
8.283 Editing and Literary Journal
Same as 121.212.
8.284 The Hand-Printed Book: Problems in Design
Same as 121.213.
8.285 Medieval Manuscript and Handwriting
Same as 121.214.
8.286 History of the Book
Same as 121.215.

Visiting Writers
8.287 Visiting Writers
Same as 121.216.
8.288 Visiting Writers
Same as 121.217.

Independent Study
8.289 Independent Study
Same as 121.218.

Special Project for Undergraduates
Same as 121.219.

For Graduates
8.290 Advanced
Same as 121.220.
8.291 Advanced
Same as 121.221.
8.292 Advanced
Same as 121.222.

Literary Periods
8.293 Early Renaissance Literature
Same as 121.223.
8.294 Seventeenth-Century Literature
Same as 121.224.
8.295 Eighteenth-Century Literature
Same as 121.225.
8.296 Nineteenth-Century Literature
Same as 121.226.
8.297 Late Victorian and Edwardes Literature
Same as 121.227.

Medieval and Renaissance
8.298 Literature and Science
Same as 121.228.
8.299 Literature and Psychology
Same as 121.229.
8.300 Literature and Philosophy
Same as 121.230.
8.301 Literature and Art
Same as 121.231.
8.302 Protestantism
Same as 121.232.
8.303 Literature and Society
Same as 121.233.
8.304 Literature and Music
Same as 121.234.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
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<tbody>
<tr>
<td>9224</td>
<td>Contemporary British Literature Since 1843</td>
<td>3</td>
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<tr>
<td>9225</td>
<td>Early Modern Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9226</td>
<td>Renaissance Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9227</td>
<td>Seventeenth-Century Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9228</td>
<td>Eighteenth-Century Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9231</td>
<td>English Renaissance Literature</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9232</td>
<td>Early Modern European Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9233</td>
<td>Compositional Techniques</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9234</td>
<td>Comparative and European Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9235</td>
<td>Medieval and Modern Music</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9236</td>
<td>Medieval and Modern Music</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9237</td>
<td>Seminars</td>
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</tbody>
</table>

**Literary Theory and Criticism**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>9246</td>
<td>Introduction to European Literature</td>
<td>3</td>
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<tr>
<td>9247</td>
<td>History of Criticism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9248</td>
<td>Issues in Literary Criticism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9249</td>
<td>History of Criticism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9250</td>
<td>Brown-British Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9251</td>
<td>Modern English Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9252</td>
<td>Electric and Philosophy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9253</td>
<td>Introduction to Comparative Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9254</td>
<td>Literary Themes, Genres, and Modes</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9255</td>
<td>Literary Magazines</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9256</td>
<td>Law to Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9257</td>
<td>Poetic Modes</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9258</td>
<td>Narrative Modes</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9259</td>
<td>Literary Sources and Modes</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9260</td>
<td>Literature and Library Forms</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Professional**

Although open to all graduate students, the primary purpose of these courses is to offer theoretical and practical training to those who plan to teach.
Expository Writing

General Interest

These courses are designed to serve the general interests and needs of undergraduates and graduates in all areas of the University. They offer practice in various elements of composition and various kinds of informative, persuasive, and expressive writing.

- EW 106 Expository Writing 3 s.h.
- EW 113 Technical and Scientific Writing 3 s.h.
- EW 161 Greek and Latin for Vocabulary Building 3 s.h.
- EW 192 Grammar and Style 3 s.h.
- EW 164 Personal Writing 3 s.h.
- EW 181 Writing for Formal and Public Purposes 3 s.h.
- EW 169 Advanced Expository Writing 3 s.h.

Special Interest

These courses are designed to serve the special interests and needs of advanced undergraduates and graduates in particular academic and professional areas of the University. They offer practice in specialized forms of writing for specialized purposes and audiences.

- EW 111 Writing for the Humanities 3 s.h.
- EW 112 Writing for the Sciences 3 s.h.
- EW 113 Writing for Business and Industry 3 s.h.
- EW 114 Writing for the Social Sciences 3 s.h.
- EW 115 Writing for the Arts 3 s.h.
- EW 155 Extended Prose New Journalistic Writing 3 s.h.
- EW 155a Forms of Writing 3 s.h.
- EW 152 Poetry Writing 3 s.h.
- EW 150 Free-Lance Writing 3 s.h.
- EW 155 Free-Lance Workshop Same as 150 3 s.h.
- EW 117 Introductory Seminar in Creative Writing 3 s.h.

Graduates preparing for secondary school teachers (grades 7–12), who are preparing writers and those who teach writing in the schools.

- EW 175 Computer Text Editing 1.5 s.h.
- EW 183 Undergraduate Project in Expository Writing 3 s.h.
- EW 240 Form of the Essay 3 s.h.
- EW 220 Essay Writing Workshop 3 s.h.
- EW 226 Critical Writing 3 s.h.

Creative Writing

These courses are designed to serve the general interests and needs of undergraduates and graduates who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Reading Workshop.

- EW 151 Writing Workshop 3 s.h.
- EW 183 Undergraduate Writers Workshop Fiction 3 s.h.
- EW 184 Undergraduate Writers Workshop: Poetry 3 s.h.
- EW 240 Expository Workshop 3 s.h.
- EW 218 Poetry Workshop 3 s.h.
- EW 240 Workshop Workshop Same as 220 3 s.h.

Undergraduate Programs

Bachelor of Science degree programs provide preparation for continuing education at the graduate level, careers in business, careers related to physical fitness and wellness, and elementary and secondary school teaching and athletic coaching.

Candidates for the B.S. degree in physical education are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 6.7 and Animal Biology 57.1. The social studies general education requirement should be satisfied by taking 318 Elementary Psychology and 118

Exercise Science and Physical Education

Chair: Gary Hansen

Professor: James G. Anderson, Carol A. Auger, Donald R. Casey, Carol C. Gottlieb, James G. Hoy, Jerry A. Maynard

Adjunct Professor: Charles M. Tipton

Assistant Professors: Larry F. Linton, David C. Leach


Lecturers: Robert J. Martin

Degrees offered: B.S., M.A., Ph.D.

The Department of Exercise Science and Physical Education offers Bachelor of Science degree programs in both exercise science and physical education. The graduate programs include the Master of Arts degree without thesis, the Master of Arts degree with thesis, and the Ph.D. degree. Students may select from nine different areas of specialization for the M.A. with thesis and the Ph.D.
### Bachelor of Science in Exercise Science

The B.S. degree in exercise science is designed primarily for students who intend to pursue advanced degrees in an exercise science specialization or to seek admission to a professional program in medicine, dentistry, or physical therapy. The specializations in the program are: anatomy; biomechanics; exercise physiology; and neural control.

#### Qualifications for admission include completion of 60 semester hours of course work with a cumulative grade-point average of 2.5 or higher, and a grade-point average of 3.0 or higher for the following courses: 101, 102 or 103, 413, 414, 222B. 225 or 225.5, 217, 753.

Exercise science majors must complete the following core courses plus all courses in their elected specialization.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>225C</td>
<td>Introduction to Computing with FORTRAN</td>
<td>3.0</td>
</tr>
<tr>
<td>281.1</td>
<td>Introduction to Physics</td>
<td>3.0</td>
</tr>
<tr>
<td>291.12</td>
<td>College Physics</td>
<td>4.0</td>
</tr>
<tr>
<td>291.13</td>
<td>General Anatomy</td>
<td>3.0</td>
</tr>
<tr>
<td>72.120</td>
<td>Human Physiology</td>
<td>4.0</td>
</tr>
<tr>
<td>72.140</td>
<td>Human Physiology</td>
<td>4.0</td>
</tr>
<tr>
<td>72.550</td>
<td>Intermediate Physiology</td>
<td>4.0</td>
</tr>
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The following courses should be completed prior to the senior year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>271.53</td>
<td>Human Anatomy</td>
<td>3.0</td>
</tr>
<tr>
<td>271.197</td>
<td>Exercise in Human Motion</td>
<td>4.0</td>
</tr>
<tr>
<td>271.141</td>
<td>Exercise Physiology</td>
<td>3.0</td>
</tr>
<tr>
<td>271.142</td>
<td>Exercise Physiology Laboratory</td>
<td>1.0</td>
</tr>
<tr>
<td>271.190</td>
<td>Principles of Motor Learning and Control</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Course requirements for the subfields in Exercise Science are listed below.

#### Anatomy Specialization

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>271.153</td>
<td>Advanced Anatomy and Physiology</td>
<td>2.0</td>
</tr>
<tr>
<td>271.157</td>
<td>The Qualitative Analysis of Human Motion</td>
<td>3.0</td>
</tr>
<tr>
<td>271.190</td>
<td>Neural Basis of Movement</td>
<td>3.0</td>
</tr>
<tr>
<td>271.180</td>
<td>Exercise Science Senior Seminar</td>
<td>2.0</td>
</tr>
<tr>
<td>271.122</td>
<td>Cell, Tissue, and Organ Biology</td>
<td>5.0</td>
</tr>
</tbody>
</table>

#### Exercise Physiology Specialization

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>412.1</td>
<td>Organic Chemistry I</td>
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<tr>
<td>412.2</td>
<td>Organic Chemistry II</td>
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<tr>
<td>271.90</td>
<td>Neurologic Basis of Movement</td>
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<tr>
<td>271.180</td>
<td>Exercise Science Senior Seminar</td>
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<tr>
<td>271.150</td>
<td>Exercise Physiology Laboratory</td>
<td>4.0</td>
</tr>
<tr>
<td>99.10</td>
<td>Biochemistry</td>
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</tr>
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</table>

#### Neuro Control Specialization

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>271.153</td>
<td>Advanced Anatomy and Physiology</td>
<td>3.0</td>
</tr>
<tr>
<td>271.157</td>
<td>The Qualitative Analysis of Human Motion</td>
<td>3.0</td>
</tr>
<tr>
<td>271.190</td>
<td>Neurologic Basis of Movement</td>
<td>4.0</td>
</tr>
<tr>
<td>271.180</td>
<td>Exercise Science Senior Seminar</td>
<td>2.0</td>
</tr>
<tr>
<td>271.112</td>
<td>Cell, Tissue, and Organ Biology</td>
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</tr>
<tr>
<td>271.180</td>
<td>Introduction to the Neurosciences</td>
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</tr>
<tr>
<td>271.161</td>
<td>Neuropsychopharmacology</td>
<td>3.0</td>
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#### Bachelor of Science in Physical Education with Teacher Certification

This degree requires the following courses in physical education:

<table>
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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>28.19</td>
<td>Orientation to Physical Education</td>
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</tr>
<tr>
<td>27.11</td>
<td>Orientation to Physical Education and Dance</td>
<td>0.5</td>
</tr>
<tr>
<td>27.56</td>
<td>First Aid and CPR</td>
<td>3.0</td>
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<tr>
<td>38.60</td>
<td>Anatomy</td>
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<tr>
<td>27.153</td>
<td>Human Anatomy</td>
<td>3.0</td>
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<tr>
<td>27.107</td>
<td>Biomechanics of Physical Education</td>
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</tr>
<tr>
<td>27.130</td>
<td>Human Physiology</td>
<td>4.0</td>
</tr>
<tr>
<td>27.105</td>
<td>Physical Education for Special Students</td>
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<table>
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<tbody>
<tr>
<td>28.10</td>
<td>Administration of Physical Education and Athletics</td>
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<tr>
<td>27.105</td>
<td>Administration and Curriculum in Physical Education</td>
<td>3.0</td>
</tr>
<tr>
<td>27.142</td>
<td>Contemporary Issues of Health Education</td>
<td>3.0</td>
</tr>
<tr>
<td>27.108</td>
<td>Teaching Motor Skills</td>
<td>3.0</td>
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<tr>
<td>27.140</td>
<td>Anthropometric Dimensions of Sport</td>
<td>3.0</td>
</tr>
<tr>
<td>27.110</td>
<td>Human Growth and Movement Development</td>
<td>2.0</td>
</tr>
<tr>
<td>27.110</td>
<td>Growth and Movement Development</td>
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<tr>
<td>27.110</td>
<td>Physical Component in Physical Education I</td>
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<tr>
<td>27.110</td>
<td>Physical Component in Physical Education II</td>
<td>2.0</td>
</tr>
<tr>
<td>27.110</td>
<td>Motor Component in Physical Education I</td>
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</tr>
<tr>
<td>72.180</td>
<td>Coaching Practicum</td>
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</tr>
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</table>

Professional education courses required for teacher certification are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.102</td>
<td>Basic Athletic Training</td>
<td>3.0</td>
</tr>
<tr>
<td>27.157</td>
<td>Administration of Athletics</td>
<td>2.0</td>
</tr>
<tr>
<td>27.180</td>
<td>Coaching Practicum</td>
<td>2.0</td>
</tr>
</tbody>
</table>

### Bachelor of Science in Physical Education without Teacher Certification

The Bachelor of Science degree in physical education without certification is offered either as a general major or as a major with emphasis on being a well-versed in fitness-wellness or athletic training.

Students must complete the following core requirements plus additional courses in the elective emphasis. (Athletic training program students are exempt from the core requirements.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.110</td>
<td>Physical Component in Physical Education I</td>
<td>2.0</td>
</tr>
<tr>
<td>27.110</td>
<td>Physical Component in Physical Education II</td>
<td>2.0</td>
</tr>
</tbody>
</table>
27.23 Skill Component in Physical Education I 4 s.h.
27.53 Human Anatomy 3 s.h.
27.56 First Aid and CPR 2 s.h.
27.57 Basic Athletic Training 3 s.h.
27.92 Biomechanics of Physical Education 3 s.h.
27.108 Teaching Motor Skills 3 s.h.
27.110 Human Growth and Motor Development 2 s.h.
27.120 Human Physiology 4 s.h.

General Major
Students who select the general major in physical education without teacher certification must complete the core requirements listed above and the following courses:

27.103 Administration and Curriculum in Physical Education 3 s.h.
27.105 Physical Education for Special Students 3 s.h.
27.83 Psych-Socio-Dimensions of Sport 3 s.h.
27.142 Contemporary Issues in Health Education 3 s.h.
27.157 Administration of Athletics 2 s.h.

Business Emphasis
Students who elect the physical education degree program with business emphasis must complete the core requirements for physical education, 16 semester hours of approved courses in the College of Business Administration, an internship, and the following courses:

17.41 Food, Nutrition, and You 3 s.h.
27.140 Exercise Physiology for Practitioners 3 s.h.

Fitness-Wellness Emphasis
Students electing the physical education degree program with physical fitness-wellness emphasis must complete the core requirements in physical education, an internship, and the following courses:

17.41 Food, Nutrition, and You 3 s.h.
27.112 Physical Activity and Aging 3 s.h.
27.140 Exercise Physiology for Practitioners 3 s.h.
28.48 Fitness for Adults 2 s.h.
28.142 Contemporary Issues of Health Education 3 s.h.
11.120 Drugs: Their Nature, Action, and Use 2 s.h.

Athletic Training Emphasis
This program provides specialized training for students who wish to concentrate their studies in athletic training and become certified athletic trainers. It meets the certification standards of the National Athletic Trainers Association. Employment opportunities include being a trainer for a professional team or as a college or secondary school. Students may elect to complete professional education courses to qualify for certification as a secondary school teacher.

Students are admitted to the program and begin clinical experience as juniors. Before being considered for admittance, students must complete a college mathematics course, be certified in First Aid and CPR, and complete the following courses:

27.52 Human Anatomy 3 s.h.
31.1 Elementary Psychology 3 s.h.
27.110 Human Growth and Motor Development 2 s.h.
27.123 Basic Athletic Training 3 s.h.
4.1 Principles of Chemistry I 3 s.h.
4.16 Principles of Chemistry Laboratory I 4 s.h.
29.9 Basic Physics 4 s.h.
27.1 Introductory Animal Biology 4 s.h.

Program requirements include:

27.300 Counseling for Related Professions 3 s.h.
27.217 Medical Aspects of Disability 3 s.h.
27.41 Food, Nutrition, and You 3 s.h.
63.101 Dynamics of Health 3 s.h.
2.114 Contemporary Issues in Health Education 3 s.h.
27.120 Drugs: Their Nature, Action, and Use 2 s.h.
27.130 Human Physiology 4 s.h.
27.140 Exercise Physiology for Practitioners 3 s.h.
27.148 Teaching Motor Skills 3 s.h.
27.1300 Psychological Principles of Coaching 4 s.h.
27.157 Biomechanics of Physical Education 3 s.h.
27.171 Medical Supervision of Athletics 3 s.h.
27.182 Clinical Sciences in Athletic Training I 3 s.h.
27.193 Critical Thinking in Athletic Training II 3 s.h.
27.1144 Seminar in Athletic Training 8 s.h.
27.250 Laboratory in Advanced Anatomy 6 s.h.
"Enrollment is limited to students formally admitted to the athletic training education program.

Minor in Physical Education
The minor in physical education requires a minimum of 15 semester hours. Students are required to take the following five courses:

27.103 Administration and Curriculum in Physical Education 3 s.h.
27.120 Human Growth and Motor Development 2 s.h.
27.87 Biomechanics of Physical Education 3 s.h.
27.118 Teaching Motor Skills 3 s.h.
27.146 Exercise Physiology for Practitioners 3 s.h.

Students may elect additional semester hours from the following to complete minor requirements:

27.52 Human Anatomy 3 s.h.
27.137 Administration of Athletics 2 s.h.
27.83 Psych-Socio-Dimensions of Sport 3 s.h.
27.105 Measurement and Evaluation in Physical Education 3 s.h.

Athletic Coaching Endorsement
The Iowa Department of Public Instruction requires that athletic coaches be certified. The following program has been approved by the Department of Public Instruction:

27.51 Human Anatomy 3 s.h.
28.13 Anatomy 3 s.h.
27.56 First Aid and CPR 2 s.h.
27.57 Basic Athletic Training 2 s.h.
1E.71 Growth and Motor Development 2 s.h.
27.110 Human Growth and Motor Development 2 s.h.
27.140 Exercise Physiology for Practitioners 3 s.h.
28.106 Physiology of Exercise 3 s.h.
27.137 Administration of Athletics 2 s.h.
28.120 Administration of Physical Education and Athletics 2 s.h.
75.1585 Coaching Practicum 2 s.h.
27.130 Coaching of Football 2 s.h.
27.34 Coaching of Baseball 2 s.h.
27.35 Coaching of Track and Field Athletics 2 s.h.
27.36 Coaching of Basketball 2 s.h.
27.37 Teaching of Swimming 2 s.h.
27.38 Coaching of Competitive Development 2 s.h.
27.39 Coaching of Wrestling 2 s.h.

Graduate Programs

Master of Arts without Thesis

The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for physical education teachers and for athletics coaches. Emphasis is on applying research findings to the organization, teaching, and evaluation of basic physical education programs for all students in schools and colleges, and to coaching interscholastic and intercollegiate athletic teams. The program focuses on problems associated with teaching and coaching in public schools and community colleges. The following course work is required background for the nonthesis M.A. program in physical education:

Human anatomy 3 s.h.
Psychology 3 s.h.
Personal health (or equivalent) 2 s.h.
Administration of physical education and athletics 2 s.h.
Methods in physical education 2 s.h.
<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Coaching of a sport</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>11 a.h.</td>
</tr>
<tr>
<td>Total</td>
<td>30 a.h.</td>
</tr>
</tbody>
</table>

For the M.A. degree without thesis, students must complete a minimum of 30 semester hours—up to 24 of which must be in physical education, including 27.201 Non-thesis Seminar—and at least one course from each of these three groups:

- **27.105 Physical Education for Special Students**: 3 a.h.
- **27.167 Measurement and Evaluation in Physical Education**: 3 a.h.
- **27.242 Supervision of Physical Education**: 3 a.h.
- **27.237 Public School Curriculum in Physical Education**: 2-3 a.h.
- **27.451 The Qualitative Analysis of Human Motion**: 3 a.h.
- **27.140 Exercise Physiology for Practitioners**: 3 a.h.

**Master of Arts with Thesis**

The thesis program leading to the M.A. degree in physical education is designed primarily as a first step in graduate study leading to the doctorate. It also provides advanced preparation for those who are teaching undergraduate physical education in four-year colleges, but do not plan to pursue doctorates.

The thesis program for the M.A. degree in physical education is a research-oriented program. Students receive an introduction to the nature and extent of research in physical education, and have an opportunity to specialize in an area of interest.

Because the M.A. degree with thesis is regarded as the first step toward the Ph.D., in one of nine areas of specialization, the undergraduate course work required depends on the area in which the candidate intends to specialize for the Ph.D. Specific courses in mathematics, chemistry, physics, biology, psychology, or physiology are required in some areas of specialization. These courses must be approved by the candidate in charge of the emphasis area selected by the candidate, and by the M.A. advisor.

The following courses are required for the M.A. degree with thesis:

- **27.141 Exercise Physiology**: 3 a.h.
- **27.142 Exercise Physiology Laboratory**: 1 a.h.
- **27.153 Advanced Anatomy and Kinesiology**: 2 a.h.
- **27.157 Biomechanics of Human Motion**: 4 a.h.

**Doctor of Philosophy**

Ph.D. candidates in physical education should have a general knowledge of all areas of physical education, a working knowledge of the research techniques applicable to problems in physical education and athletics, and in-depth knowledge in at least one area of specialization in physical education.

The specialization considered as offered in physical education include adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curricular in physical education, exercise physiology, measurement and evaluation in physical education, motor control, and therapeutics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provides the required background for the Ph.D. candidate's specialization. Candidates must complete at least 30 semester hours of graduate study in specialization, must write a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than the Department of Exercise Science and Physical Education. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees for the initial presentation of the proposed problem, and participate in the final examination, in which candidates defend their theses.

In addition to writing a comprehensive examination in physical education, candidates specializing in exercise physiology write a comprehensive examination prepared and evaluated by

**Adapted Physical Education**

- **27.110 Exceptional Persons**: 3 a.h.
- **27.201 Research**: 3 a.h.
- **27.205 Adapted Physical Education: Special Topics and Research**: 3 a.h.
- **27.108 Human Anatomy**: 4 a.h.
- **27.109 Human Anatomy and Neuromuscular**: 4 a.h.

**Administration and Supervision in Physical Education**

- **27.242 Supervision of Physical Education**: 3 a.h.
- **27.201 Foundations of School Administration**: 3 a.h.
- **27.203 Supervision of Physical Education**: 4 a.h.
- **27.204 Advanced Administration of Physical Education**: 3 a.h.

**Anatomy**

- **27.253 Laboratory in Advanced Anatomy**: 6 a.h.
- **27.1106 Neuroanatomy for Graduate Students**: 4 a.h.
- **27.127 Developmental Anatomy**: 2-3 a.h.

**Biomechanics**

- **57.119 Mechanics of Deformable Bodies**: 3 a.h.
- **57.200 Mechanics of Fluids and Transfer Processes**: 4 a.h.

**Biology**

- **18.119 Principles of Design I**: 3 a.h.
- **18.155 Intermediate Dynamics**: 3 a.h.
- **60.108 Human Anatomy**: 4 a.h.
Therapeutics
Prerequisites are listed under physical therapy Master of Arts required courses and in "Division of Associated Medical Sciences in the College of Medicine" section of the catalog.

Required Courses
101:240 Teaching Practicum (unless taken as a prerequisite) 2 s.h.
101:244 Advanced Seminar in Physical Therapy 3 s.h.
101:327 Research in Therapeutics 3 s.h.
76:120 Introduction to Instructional Design and Technology 3 s.h.
22C:300 Introduction to Computing with FORTRAN 2 s.h.
63:162 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.
72:212 Medical Physiology 5-6 s.h.
72:405 Thesis Ph.D. 8-11 s.h.

Cardiopulmonary Emphasis
99:110 Biomechanics 3 s.h.
27:141 Exercise Physiology 3 s.h.
27:302 Physiology of Exercise Laboratory 3 s.h.
72:212 Medical Physiology 6 s.h.
72:274 Exercise Physiology Seminar 2 s.h.
99:130 Metabolism 3 s.h.
72:234 Neuroscience I 4 s.h.

Measurement and Evaluation
71:343 Intermediate Statistical Methods 4 s.h.
71:244 Correlation and Regression or
22:152 Introduction to Probability and Statistics 3 s.h.
22:154 Introduction to Mathematical Statistics 3 s.h.
71:46 Design of Experiments 4 s.h.
71:255 Construction and Use of Evaluation Instruments 3 s.h.
71:265 Educational Measurement and Evaluation 3 s.h.

Motor Control
22:201 Research 5 s.h.
27:190 Mechanics of Movement 5 s.h.
27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
55:121 Introduction to Microcomputers 3 s.h.
57:140 Introduction to the Neurosciences 3 s.h.
101:212 Biomedical Instrumentation arr.

Three courses must be selected from the following areas: computer science, neuroscience, biomechanics, anatomy, and exercise science.

Facilities
The Recreation Building and Field House, provide excellent facilities for the physical education major preparing the undergraduate and graduate instructional preparation, and student participants in intramural sports, recreational activities, and activities.

Research laboratories for physiology of exercise, stress, motor control, and biomechanics are located in the Field House. They provide excellent facilities for instruction and research at both the undergraduate and graduate levels.

Cooperative efforts with other departments intended to facilitate specialization allow physical education students to use additional special facilities in other departments on the campus.

Courses
Primarily for Undergraduates
27:1 Exercise Physical Education 0-1 s.h.
27:2 Exercise Physical Education 0-1 s.h.
27:3 Exercise Physical Education 1-3 s.h.
27:4 Special Conditioning 1 s.h.
27:6 Advanced Rock Climbing Trip 1 s.h.
27:7 Rock climbing and rappelling trips conducted by Iowa Measurements personnel.
27:10 Co-Course Hiking Trip 1 s.h.
27:12 Hiking and rock climbing trips conducted by Iowa Measurements personnel.
27:11 Orientation to Physical Education Orientation lecture on historical and recreational aspects of physical education. Offered fall semester.
27:21 Field Experience in Physical Education Techniques and methods of teaching, arranging groups for participation. Offered fall semester.
27:25 Teaching of Dance Senior Seminar 3-5 s.h.
27:26 Teaching of Gymnastics Techniques involved in conditioning exercises, techniques and methods of teaching. Offered spring semester.
27:27 Coaching of Football Offered spring semester. Offered fall semester.
27:28 Coaching of Basketball Offered spring semester.
27:29 Coaching of Soccer Offered spring semester.
27:30 Coaching of Swimming Offered spring semester.
27:31 Coaching of Competitive Swimming Offered spring semester.
27:32 Coaching of Wrestling Offered fall semester.
Bachelor of Arts in French
The undergraduate major in French may be completed with an emphasis in literature, civilization, teaching, or applied French.

Courses taught in English do not count as credit toward the French major, nor does a grade of "D" in any required French course.

Literature and Track
Designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:

- 9111-112 Second-Year Composition and Conversation (6 s.h.)
- 9111-112 Third-Year Composition (6 s.h.)
- 9138 French Civilization: Third Level (2 s.h.)
- 9206 French Civilization: Fourth Level (2 s.h.)
- 925 French Pronunciation (2 s.h.)
- 925 French Pronunciation (2 s.h.)
- A minimum of four 100-level courses in literature (at least two of which must be above the 150 level), plus a 100-level course in a choice of literature, advanced language, or civilization totaling 15 semester hours.

Civilization Track
Designed for students interested in French history, politics, and culture, and recommended for students wishing to combine studies in French with a major in another area, such as history, political science, pre-law, or journalism and mass communication, the civilization track requires 30 semester hours of credit in French, including:

- 9105-106 Second-Year Composition and Conversation (8 s.h.)
- 9111-112 Third-Year Composition (6 s.h.)
- 9111-112 Third-Year Composition (6 s.h.)
- 9138 French Civilization: Third Level (2 s.h.)
- 9138 French Civilization: Fourth Level (2 s.h.)
- 9138 French Civilization: Fourth Level (2 s.h.)
- 9138 French Civilization: Fourth Level (2 s.h.)
- A minimum of four 100-level courses in civilization and three 100-level courses in literature, totaling 21 semester hours and including at least one course in literature above the 150 level.

Teaching Track
The teaching track requires 35 semester hours of credit in French, including:

- 9105-106 Second-Year Composition and Conversation (8 s.h.)
- 9111-112 Third-Year Composition (6 s.h.)
- 925 Advanced French Pronunciation (2 s.h.)
- 925 Advanced French Pronunciation (2 s.h.)
- 925 French Civilization: Third Level (2 s.h.)
- 925 French Civilization: Fourth Level (2 s.h.)
- A minimum of five 100-level courses— at least two in literature and two in civilization, totaling 15 semester hours and including at least two courses above the 150 level.

The student who plans to acquire a secondary teaching certificate must also complete the College of Education requirements for teacher certification.

Applied French Track
Designed for students with an interest in areas such as international business, commerce, or law, and others in which applied French would be an asset, the applied French program requires 30 semester hours in French, including:

- 9105-106 Second-Year Composition and Conversation (8 s.h.)
- 9111-112 Third-Year Composition (6 s.h.)
- 9115 Business French (6 s.h.)
- 9126 French Conversation: Third Level (2 s.h.)
- 9126 French Conversation: Fourth Level (2 s.h.)
- 9150 Commercial and Technical Translation (3 s.h.)
- 9150 Translation Project (3 s.h.)
- 9150 Translation Project (3 s.h.)
- Electives recommended as adjunct courses in French stylists and art analysis, another language, economics, political science, and/or business administration.

Minor
The requirements for a minor in French are fifteen semester hours, at least 12 of which must be taken at The University of Iowa. Courses numbered in the 400, 500-512, and 1506 must count toward the major in French.

Bachelor of Arts in Italian
Requirements for the major in Italian include:

- 1811-112 Intermediate Italian (8 s.h.)
- 1811-112 Advanced Composition and Conversation (7 s.h.)
- 1810-106 Introduction to Italian Literature (3 s.h.)
- 1810-106 Dante and His Times (6 s.h.)
- 1810-106 Literature of the Nineteenth Century (3 s.h.)
- A course in twentieth-century literature (3 s.h.)
- A course in twentieth-century literature (3 s.h.)
- Total (29 s.h.)

Honors
The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:

- 1998 Honors Readings (3 s.h.)
- 1998 Honors Seminar (3 s.h.)

An additional course in French literature, language, or civilization, numbered above 199 (3 s.h.)

Summer Program in France
The department is co-sponsor of a summer program in France for students enrolled in the three Iowa Regents universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but does not require that the student be a French major.

Centered in Lyon, the program combines formal class work in language skills with an integrated course in the culture and civilization of France, including visits to points of cultural and historical interest. Students may earn 8 or 9 semester hours of credit in the program.

Summer Program in Quebec
The department participates in the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the University of Montreal. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d'été pour non-francophones at the University of Montreal, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital portion of North American culture.

Language House
The French and Italian department maintains close connections with the Maison Francaise in the Foreign Language House at South Quadrangle Residence Hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

Graduate Programs
Master of Arts in French
Without Thesis
The candidate must earn a minimum of 30 semester hours of graduate credit plus a written and oral examination. The program must include 9115 Advanced French Pronunciation, 9309 Advanced Grammar and Syntax, and at least four graduate-level (180 and above) literature courses. With the permission of the department chair, the candidate may take a maximum of 6 semester hours outside the department.

Summer Program in France
The department is co-sponsor of a summer program in France for students enrolled in the three Iowa Regents universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but does not require that the student be a French major.

Centered in Lyon, the program combines formal class work in language skills with an integrated course in the culture and civilization of France, including visits to points of cultural and historical interest. Students may earn 8 or 9 semester hours of credit in the program.

Summer Program in Quebec
The department participates in the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the University of Montreal. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d'été pour non-francophones at the University of Montreal, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital portion of North American culture.

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Graduate Programs
Master of Arts in French
Without Thesis
The candidate must earn a minimum of 30 semester hours of graduate credit plus a written and oral examination. The program must include 9115 Advanced French Pronunciation, 9309 Advanced Grammar and Syntax, and at least four graduate-level (180 and above) literature courses. With the permission of the department chair, the candidate may take a maximum of 6 semester hours outside the department.
Master of Arts in French with Thesis

The requirements for the thesis program are the same as for the M.A. without thesis, except that the candidate may earn up to 6 semester hours' credit for thesis work. The candidate must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education

This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 semester hours of graduate credit, of which eight must be in education or related fields, and at least nine in graduate (200 level) courses in French literature.

The following courses also are suggested:

- 9:103: Topics in Applied French
- 9:154: Textual Analysis
- 9:209: Advanced Grammar and Lexicology
- 9:210: Comparative Syntaxes
- 9:110-114: French Civilization
- 9:150: Methods: Foreign Language
- 9:151: Language: Laboratory Equipment Procedures
- 9:152: Contemporary France
- 9:155: Advanced French Prose/Translation

Candidates must pass a final written and oral examination.

Doctor of Philosophy

Requirements for the Ph.D. degree in French are normally completed in five years, of which at least three must be spent in residence at the University. The passing of a comprehensive examination, and the successful oral defense of a dissertation.

Specific requirements include 9:251: Introduction to Old French Grammar, and four semesters of college study or equivalent proficiency in a foreign language other than French.

The candidate also must complete three graduate courses for a minimum total of 8 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 3 semester hours of credit in 9:277: Thesis.

Students working toward the dissertation are required to spend at least one year teaching as graduate assistants in the department.

Admission

To be considered for admission to the M.A. program in French, the applicant must have completed the equivalent of The University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French.

Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral studies.

For students earning the M.A. at the University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy if the M.A. earned in another institution are placed on conditional status when admitted. This status is reviewed after one semester of residence.

In addition to the Graduate Record Examination (GRE), Aptitude Test scores registered by the Admissions Office, the College requires that all applicants for admission to graduate programs in French submit scores from the U.S. Advanced Test in French.

Appointments

Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students (see the "Graduate College" section of the catalog). The department may name one Teaching/Research Fellow annually. Inquiries should be addressed to the departmental office.

Exchange assistantships agreements with the French Ministry of Education, the University of Poitiers, and the University of Picardy provide one year of residence in France for a limited number of graduate students.

French Courses

A detailed description of courses offered each semester is available in the department office. All courses are given in French unless otherwise indicated. Courses numbered 100-199 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before registering for these courses.

Courses numbered 140-149 are given in English by the Department toward the major requirements in French, but may be taken as electives; consultation with the advisor is recommended prior to registration. Students who have had significant experience with French through study or foreign residence are required to take placement tests prior to the opening of each term.

A student may not repeat, either for credit or for grade points, a course that is a prerequisite to, or whose equivalent is prerequisite to, a higher-level course that the student has already completed.

For Undergraduates and Graduates

- 9:300: Cooperative Education Internship
- 9:1 Elementary French
- 9:2 Elementary French

For students who have no knowledge of French.

9:300: Cooperative Education Internship - 3 hrs.

9:1 Elementary French - 4 hrs.

9:2 Elementary French

Preliminary: 9:1 or equivalent.

9:1 French for Travellers

Basic conversation French for the tourist. Given in conjunction with 9:122.

9:1 French for Travellers II

Continuation of 9:1 with emphasis on practical vocabulary. Given in conjunction with 9:122.

9:3 French Views of America

From Chateaubriand to de Tocqueville and contemporary issues. Given in Guided Co-operative Study Program.

9:31 Intermediate French

For students who do not plan to continue the study of French after the second year, for majors. Preliminary: 9:1 or equivalent.

9:32 Intermediate French


9:32 French Pronunciation


9:32 French Pronunciation

May be taken independently or in conjunction with 9:111, 9:12, 9:15, 9:15B. Preliminary: 9:1 or equivalent.

9:35 French Conversation: Second Level

Preliminary: 9:1 or equivalent.

9:35 Introduction to Commercial and Technical Translation

Preliminary: 9:1 or 9:15B or equivalent.

9:35 Introduction to the French Business World

Preliminary: 9:1 or 9:15B or equivalent.

9:37 Special Work

Preliminary: 9:1 or 9:15B or equivalent.

9:38 Elementary French conversational Course

First year French in one semester.

9:39 French for Reading/Research

For doctoral candidates in other departments who want reading ability for purposes of research.

9:39 French for Reading/Research

Preliminary: 9:1 or 9:15B or equivalent.

9:40 French Conversational Course

Preliminary: 9:1 or 9:15B or equivalent.

9:40 Second Year French Conversational Course

Second-year students whose goal is to function as French of whom wish to improve from active command of the language. Preliminary: 9:1 or 9:15B or equivalent.

9:40 Second-Year French Conversational Course

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Introduction to French Literature, Medieval and Renaissance

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Introduction to French Literature, Renaissance

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Introduction to French Literature, Rationalist Century

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Introduction to French Literature, Twentieth Century

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Third-Year Compositions

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Third-Year Compositions

Preliminary: 9:1 or 9:15B or equivalent.

9:41 Third-Year Compositions

Preliminary: 9:1 or 9:15B or equivalent.

9:41 French Civilization

A survey of French social history from the Middle Ages to the present. Preliminary: 9:1 or 9:15B or equivalent.

9:41 French Civilization

Preliminary: 9:1 or 9:15B or equivalent.
16:129 Dance and the Three
Map the given to English for summation
16:129 Dance and the Three
Microbiological Management (Phytopathology)
16:142 The Indian-American Heritage
Sensors: Inviscid migration since the beginning of the Revolutionary period, exploring the impact of cultural
16:144 English
Articulation: Articulation in English, and major concepts of
16:145 Culture: Articulation and English.

Primarily for Graduates
16:286 Rhetoric of Modern Railroads
16:287 Fictional Fiction
16:310 Persuasion and Storytelling (Literary)
16:317 Literature of the Twentieth Century
16:318 Latin Drama of the Renaissance
16:319 Greek Drama: Comedy
16:320 Resources of Chinese: Ancient to
16:325 Special Work

Genetics
Chair: Gary Geisler
Professor: Roger Dugger
Associate Professor: R. W. Dugger
Assistant Professor: R. W. Dugger

Graduate Program
The interdisciplinary Ph.D. program in genetics is designed to promote
collaborative investigations and intellectual interactions among students and faculty
participants affiliated with different departments.
Students enrolling in the program are encouraged to obtain a broad background in genetics, ranging from molecular to
population genetics. Within this context, however, course requirements are flexible
enough to permit students to tailor their formal course work to fit their individual needs.
In addition, they are required to earn at least 25 hours credit in molecular and microbial genetics, cell and developmental
biological, and quantitative population genetics.

Even more important than formal course work is the opportunity to do significant research in genetics. Students are
encouraged to begin their own research as quickly as possible. Research interests of the participating faculty include virtually all areas of genetics, ranging from
bacteriophage genetics to human medical genetics. Each area of genetics has a
group of faculty members with closely related interests. The University is also
strong in several related disciplines, including microbial physiology, enzymology, proteomics, and population genetics,
and quantitative and population genetics.

In addition to completing research and course work, students also must pass a comprehensive examination, usually within
their first two years of the program.

Admission
The prospective doctoral student in genetics should have a strong
undergraduate background in science, including courses in general genetics,
organic chemistry, introductory physics, and mathematics, and a
commitment to research and teaching in genetics. A student with deficiencies in a
particular area will be allowed to take these up during the first year of graduate study.

Admission to the program is based on:
1. Assessment of the applicant's undergraduate academic record.
2. Performance on the Graduate Record Examination (GRE) Aptitude Test (verbal, quantitative, and analytical) and letters of recommendation.
3. Requirements for admission are not rigid. Although almost all students currently working toward the
Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages higher than 4.0, GRE totals (verbal plus quantitative) exceeding 1250, students with lower grade-point averages or GRE scores may be admitted, depending on other
indicators of academic potential.
4. The program accepts applications for admission at any time, but students generally begin graduate work during the fall semester.

Financial Aid
All graduate students receive a financial stipend that is in the range of $3,000. (plus tuition) per year or higher depending on the source of the support.
Most of the financial support comes from a National Institutes of Health predoctoral training grant, research assistantships, teaching assistantships, scholarships, individual research grants, or other
developmental or college funds. All trainees are encouraged to do some teaching as
part of their development as scientists and teachers.

Medical Scientist Training Program
Students may combine study toward an M.D. and a Ph.D. in genetics. Further information about this program can be obtained from the director of the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs
The departments of Biochemistry, Biology, Botany, and Microbiology offer degree
programs in which students may specialize in a particular aspect of genetics. See
departmental descriptions elsewhere in the Catalog for information about these programs.

Courses
The following genetics courses are available to graduate students. Not all courses are offered every year.

99:125 Biochemistry of International Macromolecules
99:223 Gene Expression
208:124 Chromosome
208:125 Genetics and Biogenesis of Cell Organelles
61:176 Microbial Genetics
61:175 Microbial Genetics
61:179 Comparative Microbial Genetics
61:270 Topic in Molecular Biology
37:142 Population and Evolutionary Genetics
37:165 Behavioral Genetics
37:165 Quantitative Genetics
37:170 Escherichia Coli Molecular Biological
37:171 Molecular Genetics
37:172 Molecular Genetics
37:173 Topics in Evolutionary Genetics
37:176 Topics in Escherichia Coli Molecular Biology
37:215 Genetics Seminar
Geography
Chair: David R. Reynolds
Professor: Max W. Fisher, James B. Lathrop, David J. McNulty, David R. Reynolds, Gerald Rubahn
Associate professors: Claire F. Salter, H.W. McClary
Associate professors: Dave D. Vickers, Axel L. Bjarne, K. Napolean, Grant A. Tyler
Assistant professors: Marc F. Armstrong, Joyce Cooper

Visiting assistant professors: George P. Maclean, Kim Sewell

Adjunct faculty: Susan Connell, Mary P. Klugman, Jordan Lawrence, Thomas G. Newton

Degrees offered: B.A., B.S., MA., Ph.D.

Geography seeks to explain spatial organization and aerial differentiation through detailed studies of significant patterns and processes. The discipline is concerned with "place" or "environment" and ongoing forces that promote change within and between human and physical systems. Geography is a composite of science, requiring a broad base of knowledge from many related disciplines. It is an analytical science that seeks explanations of specific research questions from a diverse geographic perspective.

Students who elect courses in geography find that developing insights and methods of inquiry that are particularly applicable to understanding many of the complex problems confronting societies. For instance, the distribution and consumption of natural resources, air and water pollution, the growth and development of urban areas, increasing populations, transportation problems, spatial inequalities, migration of services, and conflicts between nations are some of the lessons which are learned during geographical training.

Studies in geography also provide students with concepts and methods for organizing such spatial units as urban areas, marketing regions, school districts, health service areas, drainage basins, and other areas of environmental concern. Thus, geographers can make substantial contributions toward understanding the behavior of individuals and of society, and their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and in business. There is a demand for persons capable of dealing with resource management, regional development, land planning, the analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to teach at any elementary and secondary school levels, of students who want to work in urban and regional planning, and as a background for many related professions, including law, health care, environmental or transportation engineering, and business administration.

Undergraduate Program
The geography faculty has developed an undergraduate instructional program that provides educational opportunities for a variety of students. For the student interested in elective courses as they relate to a liberal education, for the student interested in electing a cluster of courses in conjunction with another discipline or for the B.G.S. degree, and for students interested in acquiring a major or minor in geography. The department also joins in significant interdepartmental programs involving global, urban, and environmental components.

Programs for the Undergraduate Major
Students majoring in geography may choose from alternative programs depending on their interests. The substantive strengths of the department fall into three areas: environmental studies, urban and regional studies, and international development studies. Students may concentrate their studies in one of these areas, or they may develop an individualized program within the curriculum offered by the department.

Students planning advanced training or seeking careers in geography should elect the Bachelor of Science (B.S.) degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts (B.A.) degree.

Requirements
All geography majors must complete a minimum of 36 semester hours of geography course work, at least 15 of which must be at the 300 level. Many students find that they need more than the minimum requirements to master a specific subject.

All geography majors must complete:
44:110 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors
and one of the following courses in statistics:
225:101 Biostatistics
225:102 Introduction to Statistical Methods
225:127 Applied Statistical Methods and Computation

Bachelor of Science students must fulfill a mathematics requirement of two courses, preferably to the level of calculus. Students should select one course from section A and one course from section B, or two courses from section B:

Section A
225:103 Trigonometry
225:10 Intermediate Algebra
225:115 Mathematics for the Biological Sciences

Section B
225:16 Calculus for the Biological Sciences
225:19 Elementary Functions
225:25 Calculus I
225:26 Calculus II
225:27 Engineering Calculus I
225:36 Engineering Calculus II

Bachelor of Science students also must take a computer programming course in one of the following:
225:22 Introduction to Computing with FORTRAN
225:26 Introduction to Programming with Pascal

With the consent of the geography faculty, equivalent courses that have objectives similar to these may be accepted in fulfillment of the statistical, mathematical, and computer science requirements.

Recommendations
Students majoring in geography are advised to:
Take both the introductory level courses 44:1 Introduction to Human Geography and 44:3 Introduction to Physical Geography during their freshman or sophomore year.
Take 44:110 Spatial Organization following by 44:150 Undergraduate Seminar for Geography Majors during their senior year.

Take the statistical, mathematical, and computer programming requirements as early as possible because many advanced level geography courses assume prior knowledge of these subjects.

It is strongly recommended that students take 225:25 Calculus I or its equivalent in fulfillment of the mathematics requirement. Students equipped with these skills will have greater flexibility in further geography and other courses and encounter opportunities.

Courses for the Nonmajor
Students in the College of Liberal Arts or other schools and colleges of the University may find geography courses meaningful to their own program of study. The beginning level courses 44:1 Introduction to Human Geography, 44:11 Introduction to Social Geography, 44:19 Contemporary Environmental Issues, and 44:3 Introduction to Economic Geography are available for general education credit in social science, and 44:3 Introduction to Physical Geography is available for general education credit in natural science. These courses serve as part of a liberal education.
Students concentrating on international development studies should select at least 21 semester hours of courses from the following:

241 Introduction to Human Geography
242 Introduction to Physical Geography
243 Introduction to Social Geography
244 Introduction to Political Geography
245 Spatial Organization and Political Economy in the Third World
246 African Development
247 Latin America: Interaction and Change
248 Patterns of Urbanization and Development in Latin America
249 Political Organization of Space
249 Locational Conflict
249 Energy in Contemporary Society

Also strongly recommended:

245 Maps and Mapping
249 Computer Methods in Geographical Analysis

249 Geographic Information Systems

Under the direction of an adviser, students should select courses in related disciplines from the following:

301 The Economic Theory of the Third World
302 Policy Problems in Industrial Societies
305 The Political Economy of the Third World
306 International Politics
307 Politics of War and Peace
312 Political Economy of the Military-Industrial Complex
313 Economic Development of Underdeveloped Countries
1111 Colonial Latin America
1112 Industrialization of Latin America
1122 Modern African History
1126 China: Opium War to Mao

Appropriate foreign language training also might be a part of the student's degree program.

The department cooperates in the interdisciplinary Global Studies Program.

Individual Programs

Students with more general interests who wish to pursue a Bachelor of Arts degree may design their own individual programs of instruction with the help of their advisers. Such programs must include at least 25 semester hours of geography, at least 15 of which must be at the 100 level. They also must include the following courses:

241 Introduction to Human Geography
242 Introduction to Physical Geography
243 Introduction to Social Geography
244 Introduction to Political Geography

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Master of Arts

The department offers live M.A. subprograms in locational analysis, political geography, regional development, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, health planning, development planning in the Third World, water resources management, and transportation, as well as for those interested in pursuing the Ph.D.

Each subprogram cuts across some of the most traditional breakdowns of the discipline and builds on the research specialties of the faculty. For example, topics of interest in urban geography are included in three subprograms: locational analysis, political geography, and regional development, while the traditional concern of economic geography are included in locational analysis and regional development. The more quantitative perspectives of regional science are included in locational analysis and transportation systems analysis. The water resources subprogram builds on a strong foundation in physical geography and environmental science.

Although M.A. students pursue a program of study within one of the subprograms, they must also gain a basic proficiency in another. The M.A. emphasizes the acquisition of analytical skills and their application in research. Courses that provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematical models and research methodology therefore are integral to the M.A. program.

Additionally, the locational analysis subprogram may take an additional elective course that enables the student to earn a locational analysis certificate in addition to his M.S. degree.

General Requirements

The M.A. degree requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be in 200-level courses or above. In addition to fulfilling the course requirements in one of the department's five subprograms (see below), students must complete the following:

Complete at least one course in another subprogram from the following introductory graduate courses: 44.125, 44.126, 44.134, 44.177, or 44.294.

Enroll in the department's general colloquium seminar (44.350 Research Seminar; Staff) during each semester in residence.

Satisfy the department's B.S. degree requirements or their equivalents in

Graduate Programs

The goals of the department's graduate programs are to prepare students to carry on creative and productive research in selected areas of geography involving the use and further elaboration of theory and to prepare students for positions in research, teaching, or some area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates to fill positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are

225-227 Applied Statistical Methods and

225-227 Biostatistics

225-227 Introduction to Statistical Methods

Minor

A minor in geography is an option available to all students pursuing a B.A. or B.S. in the College of Liberal Arts. To minor in geography, students must complete a minimum of 15 semester hours in geography, 12 of which must be taken at The University of Iowa in 100-level courses. Minors should declare one of the department's three areas of concentration: environmental studies, urban and regional studies, and international development studies, and, in consultation with their geography minor adviser, select courses from those listed in that area (see above).

Honors

The honors major is for students of superior ability who want to pursue studies beyond the typical undergraduate level. To graduate with honors in geography, a student must be admitted to the College of Liberal Arts Honors Program as well as the Honors Program in geography by the first semester of the senior year, and must maintain a grade-point average of 3.2 in all University work and 3.4 in geography.

Prepare and successfully defend an honors thesis; the thesis consists of original work under the direction of a faculty member and is assessed by a three-member faculty committee.

The Cooperative Education Program

The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.
mathematics, statistics, and computer programming.

Courses, with a grade of "B" or better, at least one 3-semester-hour quantitative methods course from a list of courses approved by the faculty.

The M.A. degree can be earned with or without thesis. A minimum of 6 semester hours of credit may be earned for thesis work.

Students selecting the M.A. without thesis must pass a written examination and, in most subprograms, an oral examination. For students electing the M.A. with thesis, the written examination can be waived and the thesis defense serves as the oral M.A. examination.

Subprogram Requirements

Local Analysis:
44:134 Methods of Transportation Analysis
44:137 Economic Theory of Location
66:201 Microeconomics I or
66:205 Microeconomics II

44:207 Urban Economics and Urban Spatial Structure
44:305 Methods of Regional Analysis: Regional Science
44:206 Advanced Location Theory
44:300 Research Seminar: Location Theory

Political Geography:
44:175 Location Conflict
66:203 Microeconomics I
44:210 Philosophy and Epistemology in Geography
44:270 Jurisdictional Organization/Public Service Provision
102:206 Collective Decision Making
102:212 Social Theory, Social Movements, and Public Policy

44:315 Research Seminar: Political Geography

Regional Development
44:194 Economic Geography of Regional Development
44:211 Industrial Location and Regional Development in Latin America
44:254 Agrarian Change and Rural Development in the Third World
44:294 Geographic Perspectives on Development
44:304 Research Seminar: Regional Development

Highly recommended courses:
44:285 Methods of Regional Analysis: Science
44:500 Regional Development Theory and Method
30:500 Political Economy and Public Policy in Developing Countries

Transportation Systems Analysis

44:103 Statistical Methods in Econometrics
44:194 Methods of Quantitative Economics
66:303 Microeconomics I or
66:205 Microeconomics II

44:134 Methods of Transportation Analysis
44:270 Travel Demand Modeling
44:260 Transportation Policy and Planning
44:251 Problems in Transportation and Land Use or
53:202 Urban Transportation Planning

Course satisfies the M.A. and Ph.D. quantitative methods requirements.

Water Resources
44:128 Drainage Basin: Form and Process
44:125 Water in the Biosphere
44:125 Environmental Impact Assessment
3 Three of the following:
44:220 Flood Studies: Hydrology and Geography
44:225 Water Resources Systems Analysis
44:228 Fluvial Systems in Landscape Ecology
44:227 Water Quality Control Systems
66:201 Water Resources Management and
66:329 Research Seminar: Water Resources

Students are expected to have an undergraduate background relevant to pursuing graduate work in one of the department's subprograms. A B.A. or B.S. in geography is not a prerequisite for entry into the program. A strong analytical background in any of the social or natural sciences is an advantage in exploring the regional and spatial perspectives characterizing modern geography.

In particular, the student's background must reflect an interest in the particular disciplinary orientation of the student's choice. For example, students interested in the industrial location analysis course must be familiar with the economic and spatial theories discussed in the course. Students interested in the environmental impact assessment course must be familiar with the environmental sciences.

The Ph.D. is a four-year program, but it can be completed in as little as three years. The student must complete 30 semester hours of graduate credit in completing the Ph.D. Students are advised to use these additional hours to enroll in graduate courses in other subprograms in addition to the graduate seminars in their individual subprograms.

Doctor of Philosophy

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to broad knowledge of a field of geography and its literature and special expertise in a specific subfield. The former usually represents the general area in which the Ph.D. holder seeks employment, whereas the latter represents his or her area of most active research involvement. The Ph.D. is fundamentally a research degree and as such is constrained by the expertise of the faculty. At the Ph.D. level, the department is best known for its rigorous analytical orientation, particularly in the areas of locational analysis, spatial behavior, transportation, Third World regional development, urban political geography, and water resources management.

The Ph.D. is a four-year program, but it can be completed in as little as three years. The student must complete 30 semester hours of graduate-level coursework and all requirements for the Ph.D. in the department's subprograms. Students enrolling in the program directly in the Ph.D. program must complete the Ph.D. program requirements—total of 6 semester hours—during their first year in residence.

Complete one additional research seminar under the direction of a faculty member who is not directing the research seminar satisfying the student's M.A. requirement.

Register for the department's colloquium and/or 44:50 Research Seminar: Staff each semester that the student is in residence.

Before students can formally be admitted to candidacy for the Ph.D., they must submit an original research paper to the faculty for its approval. Students completing the M.A. with thesis can submit the M.A. thesis to fulfill this requirement. Students entering the program with an M.A. in another subject will be required to submit a research paper to fulfill the requirement. Students who initially enter the M.A. program with a terminal M.A. as their degree objective and who complete that program can enter the Ph.D. program by fulfilling the research paper requirement.

By the end of the M.A. portion of the program (typically the first year for the student entering the program directly from B.S. or B.A.), the student must have
The program requires at least 10 semester hours of college mathematics, including 22M:26 Calculus II or 22M:38 Engineering Calculus II. Computer science or statistics courses may be counted toward the 10-semester hour requirement. Additional mathematics courses are strongly recommended.

Eight semester hours of physics, 8 semester hours of chemistry, and a course with a lab in a biological science are also required.

Bachelors of Arts

The Bachelor of Arts program is designed to provide a general background in geology—with a broader choice of electives—than that for the B.S. program—for students who are not planning to become professional geologists. With appropriate course work in other fields, the B.A. program provides a base for high school or community college teaching. A general background in geology and allied fields is also applicable to work such as conservation and environmental problems. Course requirements for the B.A. in geology:

* 12:23 Evolution of the Earth 4 s.h.
* 12:41 Mineralogy 4 s.h.
* 12:52 Elementary Petrology 4 s.h.
* 12:111 Principles of Paleontology 3 s.h.
* 12:110 Field Trip (two sections) 4 s.h.
* Geology electives 12 s.h.
Total 35 s.h.

The student may substitute 12:23 Earth History and Resources and 12:24 Introduction to Environmental Geology for 12:23 Introduction to Geology, but 12:5 is preferred for the B.A.

The B.A. in geology requires at least 10 semester hours of college-level mathematics, which may include computer science or statistics.

Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student's objectives are recommended.

Joint Programs

Joint programs can be arranged, typically with chemistry, physics, biology, and anthropology.

Original Research

A Junior or senior who is ready to pursue original research for credit in geology may enroll as a faculty member or graduate student with a current research project, or may initiate a small-scale project involving combination of field, laboratory, and library investigations. This independent study is encouraged. Undergraduate class time produced term reports that subsequently were published.

Honors

A degree "with honors" in geology is offered. Students in the honors programs can elect a senior thesis.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study.

All beginning graduate students in geology must take 12:107 Geologic Orientations. All graduate students in geology must perform teaching, research, or related appropriate services as part of the degree program.

Prospective graduate students in geology should consult the "Rules and Regulations" in the "Graduate College" section of the Catalog for general admission and graduate study requirements.

Master of Science

The M.S. degree programs are designed to complete the student's broad, fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a graduate advisor. Before the end of the second semester, the student has selected a research area and related thesis advisor. The thesis advisor then approves a thesis adviser and additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval for a suitable program of course work, and for satisfactory development of research plans as outlined in the thesis proposal that is submitted for preliminary approval.

The degree requires at least 30 semester hours of credit in graduate-level course work, including not more than 8 semester hours of thesis and research credit, and at least 2 credits of course work in residence at The University of Iowa.

Master's degree candidates complete at least one-half of the Ph.D. language and tool requirements as part of the master's program. Course work taken to satisfy these requirements does not count toward the semester-hour requirements for the degree.

To qualify for admission to the final master's examination, the candidate must have at least a 3.0 grade-point average on graduate courses that he or she is taking toward the 30 semester hours minimum requirement for the degree. Additionally,
the grade-point average on all graduate geology courses should be at least 3.0. Not more than 8 semester hours of thesis and research may be counted toward the 36-
semester-hour minimum required for the degree program.

Master of Science with Thesis

Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

Master of Science without Thesis

The department encourages few students to pursue the M.S. without thesis. The program requires that applicants have approximately three recent or experience working under the supervision of a professional geologist, or equivalent experience in some phase of geologic activity.

The student should receive prior faculty permission to apply for the experience toward the degree.

Students must submit a written report on the activity, describing the geologic principles involved and its value and broader applications and implications. No college credit is granted.

The M.S. degree without thesis requires at least 36 semester hours of graduate coursework, of which at least 8 semester hours must be earned in other departments of the University.

The faculty also requires that students submit a formal topical report dealing with an appropriate subject or project. Credit may be granted for this report.

The following courses serve as work and work done in lieu of the thesis.

Master of Arts in Teaching (Earth Science)

This program enables students to combine certification to teach secondary school with participation in a specialist graduate curriculum. Awarded by the College of Education, the M.A.T. degree requires at least 20 semester hours of graduate study in professional education and at least 18 semester hours of graduate coursework on earth science.

Doctor of Philosophy

The Ph.D. degree in geology requires at least 72 semester hours of graduate coursework, including at least two full-time semesters in residence beyond the last 24 semester hours of graduate study.

Departmental language and tool requirements for the Ph.D. degree may be met either by achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language. Competence is normally achieved by satisfactory completion of a one-year sequence of appropriate courses.

The comprehensive requirements for the Ph.D. degree in geology at The University of Iowa, where appropriate, additional work in one area may be approved as satisfying requirements in another.

An appropriate graduate course in another discipline; courses consisting between geology and other departments are not generally considered to meet this requirement.

At least 24 semester hours of graduate coursework, exclusive of credit for dissertation research and beyond coursework work applied toward the M.S. degree.

The comprehensive examination covers, in depth, all subdivisions of one major field and one subdivision in each of three other major fields. It also presumes that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks.

These are the major and minor fields:

Economic geology
Petroleum
Economic geology
Mineral economics
Mineralogy
Crystallography
Determinative mineralogy
Crystal chemistry and mineral chemistry
Igneous and metamorphic petrology
Igneous petrology
Metamorphic petrology
Aquatic geochemistry and thermodynamics
Structural geology
GEOLOGY

Structural analysis
Remote sensing
Geophysics
Exploration geophysics
Solid-earth geophysics
Rock properties
Stratigraphy
Physical stratigraphy
Biostratigraphy
Depositional environments
Sedimentary petrology
Sedimentation
Sandstone and carbonate petrology
Physical stratigraphy
Pleistocene studies
Pliocene paleontology
Vertebrate paleontology
Quaternary paleontology
Palaontology
Paleoclimatology
Paleontology
Eocene stratigraphy
General geomorphology
Glacial and Pleistocene
Remote sensing
Environmental geology
Hydrogeology
Remote sensing
Engineering geology
Other minor subjects
Botany
Biology
Chemistry
Physics
Materials engineering
Geology
Cooperative Activities

The department has collaborative work with the Iowa Geological Survey and geology students sometimes work on projects for the survey.

The departments of Geology, Geography, Anthropology, Chemistry, Botany, and Biology cooperate in sharing services, expertise, joint instruction, and equipment. The Geological Survey participates in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects on Quaternary geology in the Midwest, botany, biology, anthropology, and statistics. Course work, degree programs, and facilities are shared among departments.

Field Trips

Field trips are integral parts of several courses in geology with frequent weekend general interest events. In the Iowa City region, the geology is characterized by a layer of glacial drift on a largely pre-Pleistocene sedimentary section a few hundred feet thick, covering a Precambrian crystalline basement. Some term and interterm fossil assemblages, extensive reefs, and unique geode sites are available within a few hours’ drive. Numerous Pleistocene glaciations are represented in Iowa, and field studies of landforms, exposures, and continuous data yield information on sedimentology, stratigraphy, paleopedology, and fossil biotas from both glacial and interglacial deposits. Spring break provides time for longer trips available to all geology students. In recent years students have traveled to Grand Canyon, the Florida Keys, the southern Appalachians, the Big Bend Region of Texas, and the Guadalupe Mountains in Texas, Northern Dakota, Ontario, Kansas, Oklahoma, and California.

Courses

Primarily for Undergraduates

17.000 Cooperative Internships in Geology 4.5-8.0

Professional experience in areas of interest, planned with the student's career, preceded by a 4-credit course in geology and approval of the instructor. May be repeated for approval. 12.0 credits maximum. 4.5-8.0 credits required for graduation.

18.000 Earth History and Resources 3.0

Introduction to geologic terminology and the methods used in the study of the Earth's history and resources, emphasizing economic and resource-related aspects of geology, with a laboratory component. Open to students who have had 12.0 or 12.5.

19.000 Lectures in Environmental Geology 2.0

Introduction to Diversification of Life. Open to students who have had 10.0 or 11.0.

19.010 Principles of Physical Geology 3.0

Introduction to the basic sciences that form the physical sciences. Emphasis on the concepts and methods of physical geology. Course work, degree programs, and facilities are shared among departments.

20.010 Principles of Historical Geology 3.0

Introduction to the basic sciences that form the physical sciences. Emphasis on the concepts and methods of physical geology. Course work, degree programs, and facilities are shared among departments.

19.020 Introduction to Geology 2.0

Lectures and laboratory coursework in geological sciences. Lab work includes experiments in physics, chemistry, and biology. Open to students who have had 12.0 or 12.5.

21.000 Evolution of Earth 2.5

Introduction to the history of the Earth and to the history of the world. Open to students who have had 12.0 or 12.5.

22.000 Geology of the Pacific 3.0

Introduction to the geology of the Pacific Northwest, including the major geologic processes that have created and modified its geology. Open to students who have had 12.0 or 12.5.

23.000 History of Geology 2.0

Historical interest in the development of the science of geology and of the earth sciences. Open to students who have had 12.0 or 12.5.

241.000 Field Trip 2.0

Trips to field sites during spring or summer in areas of geology, including the State of Iowa. Open to students who have had 12.0 or 12.5.

241.010 Geology of the U.S. National Parks 2.0

Introduction to the geology of the major national parks in the United States. Emphasis on geologic processes, geologic history, and the regional geology.

241.020 Geology of Volcanic Areas 2.0

Introduction to the geology of volcanic areas, including the major geologic processes that have created and modified the geology of volcanic areas. Open to students who have had 12.0 or 12.5.

241.030 Geology of Desert Areas 2.0

Introduction to the geology of desert areas, including the major geologic processes that have created and modified the geology of desert areas. Open to students who have had 12.0 or 12.5.

241.040 Geology of Coastal Areas 2.0

Introduction to the geology of coastal areas, including the major geologic processes that have created and modified the geology of coastal areas. Open to students who have had 12.0 or 12.5.
proficiency in the language for use in business and government. It is especially useful when combined with a business-oriented curriculum.

Each track normally requires 24 semester hours of course work in the department, beyond the basic program. The following course sequences, or their equivalents, are required for students who begin in German with no previous experience with the German language.

Basic Program
13.11 Elementary German I 4 s.h.
13.12 Elementary German II 4 s.h.
13.21 Intermediate German I 3 s.h.
13.22 Intermediate German II 3 s.h.

The basic program may also be satisfied by various combinations of courses from the following: 13.13, 13.14, 13.25, 13.26, and 13.27. See the German department undergraduate advisor for details.

Humanities Track
Third Year
13.101 Introduction to Modern German Literature I 3 s.h.
13.102 Introduction to Modern German Literature II 3 s.h.
13.103 Composition and Conversation I 3 s.h.
13.104 Composition and Conversation II 3 s.h.

Fourth Year
13.105 German Cultural History 3 s.h.
13.111 Survey of German Literature 3 s.h.
13.112 Survey of German Literature 3 s.h.
13.116 Advanced Composition and Conversation 3 s.h.

Applied German Track
Third Year
13.201 Composition and Conversation I 3 s.h.
13.202 Composition and Conversation II 3 s.h.
13.106 Pronunciation and Techniques of Translation 3 s.h.
13.307 Translation: Prose and Poetry 2.4 s.h.
13.114 Business German I or 13.115 Contemporary German Civilization 3 s.h.

Fourth Year
13.116 Advanced Composition and Conversation 3 s.h.
13.114 Business German II 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

The student in Applied German must complete at least one additional German literature or culture course at the 100 level or above.

German majors, graduate as well as undergraduate, are urged to supplement their degree programs with relevant courses in German history, philosophy, business, etc.

A student with native proficiency in German should declare German only as a second major, and must complete a full major in a subject in which he or she has no such obvious advantage over his or her peers.

Minor
A minor in German requires 15 semester hours of course work in college-level German. Twelve of these semester hours must be in advanced courses (13.100 and above) at The University of Iowa. All courses numbered 100 and above must be in the minor except 13.118, 13.125, 13.126, 13.137, 13.138, 13.152, 13.173, 13.182, and 13.183.

Certification for Teaching Minor
In addition to the basic program requirements for the first and second year, a student must take the following courses or their equivalents for certification of the teaching minor in German:
13.101 Introduction to Modern German Literature I 3 s.h.
13.102 Introduction to Modern German Literature II 3 s.h.
13.103 Composition and Conversation I 3 s.h.
13.104 Composition and Conversation II 3 s.h.
13.116 Advanced Composition and Conversation 3 s.h.

Honors
This program is open to junior and senior students who are majoring in German and have grade-point averages of at least 3.2 overall and 3.5 in German. During the junior and senior years, the honors student in German is expected to engage in extra readings and discussions, and to write a term paper (if feasible) for each of the courses in which he or she is enrolled. A senior essay, written under the supervision of a faculty member, is a comprehensive oral examination complete the program.

Special Facilities
Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. Students also may benefit from the Computer-Assisted Instruction program.

An extensive collection of works and periodicals in the University Libraries facilitates research in all major areas of German literature and Germanic linguistics at all levels of study.

The Foreign Language House in South Quadrangle Residence Hall is available to undergraduate and graduate students as an on-campus housing option.

Foreign Study
The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three Iowa Regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Bede's, near Graz, Austria. Instruction in both language and culture is provided on appropriate levels. A second four-week session is held in Vienna, where faculty of the International University at the University of Vienna conduct seminars daily, again on several levels. An independent travel period is scheduled during the program.

To participate, the student must be admitted to one of the three Iowa Regents universities for the summer semester. Applicants should have a good basic knowledge of German—normally two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.

For further information, write to the Department of German.

Graduate Programs
Master of Arts (Thesis)
Graduate students of German who demonstrate an interest in and potential for productive scholarship and who plan to continue the doctoral study should elect the master's degree program with thesis. The master's program requires a minimum of 30 semester hours, or equivalent, of graduate-level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog).

If the student has not completed major coursework or equivalents in the department's undergraduate program, he or she will be required also to take the coursework required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such work.

With the graduate advisor's approval, some of the 30 semester hours required for the degree may be taken outside the department in such mixed subjects as philosophy, history, linguistics, or other languages.

Normally, the student may receive two semester hours of credit for satisfactory completion of the thesis. The thesis topic may be either linguistic or literary, and is subject to approval by the faculty.
Financial Aid
Teaching assistantships, research assistantships, teaching-research fellowships, and tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funk prizes to students of distinction.

Courses
Primarily for Undergraduates
120:90 Cooperative Education Internship 9 cr.

120:11 First-Semester Dutch 3 cr.
Use this course to teach students to speak Dutch with understanding, concentration, and expressiveness.

120:12 Second-Semester Dutch 3 cr.
Two parts of a year-long program designed to enable students to read, speak, and write in Dutch.

120:13 Third-Semester Dutch 3 cr.
Further acquaintance with Dutch by means of reading, speaking, and writing in Dutch.

120:14 Fourth-Semester Dutch 3 cr.
Further acquaintance with Dutch by means of reading, speaking, and writing in Dutch.

131:01 German and German for Travelers 1 cr.
First-year upper-level students.

131:02 Elementary German 3 cr.
Introduction to German language and culture through a program of reading, writing, speaking, and listening in German.

131:03 Intermediate German 3 cr.
Intermediate level of reading, writing, speaking, and listening in German.

131:04 Advanced German 3 cr.
Advanced level of reading, writing, speaking, and listening in German.

131:05 First-Year German Review 3 cr.
A required course for students who have had previous experience with German language as an undergraduate.

131:06 Intermediate German 3 cr.
Further development of the student's speaking, writing, and listening abilities.

131:07 German and German for Travelers 1 cr.
First-year upper-level students.

131:08 Elementary German 3 cr.
Introduction to German language and culture through a program of reading, writing, speaking, and listening in German.

131:09 Intermediate German 3 cr.
Intermediate level of reading, writing, speaking, and listening in German.

131:10 Advanced German 3 cr.
Advanced level of reading, writing, speaking, and listening in German.

131:11 First-Year German Review 3 cr.
A required course for students who have had previous experience with German language as an undergraduate.

131:12 Intermediate German 3 cr.
Further development of the student's speaking, writing, and listening abilities.

131:13 German and German for Travelers 1 cr.
First-year upper-level students.

131:14 Elementary German 3 cr.
Introduction to German language and culture through a program of reading, writing, speaking, and listening in German.

131:15 Intermediate German 3 cr.
Intermediate level of reading, writing, speaking, and listening in German.

131:16 Advanced German 3 cr.
Advanced level of reading, writing, speaking, and listening in German.

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131:22 Advanced German 3 cr.
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131:23 First-Year German Review 3 cr.
A required course for students who have had previous experience with German language as an undergraduate.

131:24 Intermediate German 3 cr.
Further development of the student's speaking, writing, and listening abilities.

131:25 German and German for Travelers 1 cr.
First-year upper-level students.

131:26 Elementary German 3 cr.
Introduction to German language and culture through a program of reading, writing, speaking, and listening in German.

131:27 Intermediate German 3 cr.
Intermediate level of reading, writing, speaking, and listening in German.

131:28 Advanced German 3 cr.
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First-year upper-level students.

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131:81 Intermediate German 3 cr.
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131:82 Advanced German 3 cr.
Advanced level of reading, writing, speaking, and listening in German.

131:83 First-Year German Review 3 cr.
A required course for students who have had previous experience with German language as an undergraduate.

131:84 Intermediate German 3 cr.
Further development of the student's speaking, writing, and listening abilities.

131:85 German and German for Travelers 1 cr.
First-year upper-level students.

131:86 Elementary German 3 cr.
Introduction to German language and culture through a program of reading, writing, speaking, and listening in German.

131:87 Intermediate German 3 cr.
Intermediate level of reading, writing, speaking, and listening in German.
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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>231</td>
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<td>232</td>
<td>Oral and Written Exams</td>
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<td>233</td>
<td>German Prose</td>
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<td>234</td>
<td>German Literature</td>
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<td>235</td>
<td>German Poetry</td>
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<td>236</td>
<td>German Philosophy</td>
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<td>German Film</td>
<td>3.0</td>
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<tr>
<td>238</td>
<td>German and European Culture</td>
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**Language Courses for Graduate Nonmajors**

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<td>Introductory German</td>
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<td>232</td>
<td>Intermediate German I</td>
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<td>Intermediate German II</td>
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<td>234</td>
<td>Advanced German</td>
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<td>235</td>
<td>Advanced Prose</td>
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<tr>
<td>236</td>
<td>Advanced Poetry</td>
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<td>237</td>
<td>Advanced Philosophy</td>
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<tr>
<td>238</td>
<td>Advanced Film</td>
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**For Graduates**

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<th>Course</th>
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<tr>
<td>231</td>
<td>Advanced Composition and Criticism</td>
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<tr>
<td>232</td>
<td>Oral and Written Exams</td>
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<tr>
<td>233</td>
<td>German Prose</td>
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<td>German Literature</td>
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**Global Studies**

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<td>233</td>
<td>Seminar in German Literature of the Nineteenth Century</td>
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<tr>
<td>234</td>
<td>Seminar in German Literature of the Twentieth Century</td>
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<tr>
<td>235</td>
<td>Seminar in German Literature of the Twenty-First Century</td>
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<tr>
<td>236</td>
<td>Seminar in German Literature of the Twenty-Second Century</td>
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<tr>
<td>237</td>
<td>Seminar in German Literature of the Twenty-Third Century</td>
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<tr>
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<td>Seminar in German Literature of the Twenty-Fourth Century</td>
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<tr>
<td>239</td>
<td>Seminar in German Literature of the Twenty-Fifth Century</td>
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<td>240</td>
<td>Seminar in German Literature of the Twenty-Sixth Century</td>
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**Programs**

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<th>Course</th>
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<td>Certificate Program in Global Studies</td>
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<tr>
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</tbody>
</table>
Environmental Concerns and Global Resources

This component of the Global Studies Program is concerned with the availability, use, and disposal of global resources. Of special concern are the environmental problems arising from the transformation of these resources by humans using modern technology.

46:11 Contemporary Environmental Issues

Or

46:14 Introduction to Global Environment

Cross Cultural Understanding

Global issues will require for their analysis and solution persons educated to understand the perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating with and arriving at possible solutions to global problems; and that without careful examination, it is risky to accept as absolute the perceptions, values, and beliefs of any one society or culture.

The goals of this program component are to highlight cross-cultural differences, perceptions as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to foster the cross-cultural understanding and sensibilities required for dealing adequately with global issues; and to encourage students to clarify their own values as they bear on the analysis of global problems and proposals for their amelioration.

13:0: Introduction to the Study of Culture and Society

Or

11:10 Anthropology and Contemporary World Problems

A list of additional courses that satisfy the requirement of three courses in a single area is available from the Global Studies office. The student pursuing the Global Studies Certificate should consult with the Global Studies Chair as early as possible in his or her academic career.

Minor

The requirements for the global studies minor are the same as those for the certificate, except that courses taken in the student's minor requirement do not count toward the minor.

Honors Major

The honors major is a broadly conceived program that provides a great deal of flexibility, yet at the same time has a quite definite structure. To be eligible, a student must be in the College of Liberal Arts Honors Program. The student is required to demonstrate an ability to use one foreign language, to take a "core" curriculum of courses in global studies and two or more different departments, to develop a familiarity with one major world region, and to study in some depth one of the global studies problem areas. More specifically, the requirements of the major are as follows.

Language

Each student is required to demonstrate an ability to use one foreign language. Qualify the language should be relevant to the area chosen for study. The details of this requirement are worked out on an individual basis. In no case is the requirement less than that for the B.A. degree of the College of Liberal Arts and it commonly requires more work.

Core

All students will take the following core curriculum (27 s.h.).

47:1 International Interdependence and Human Society: An Introduction to Global Studies

47:180 Global Studies Seminar (3 s.h.)

One of the following courses (3 s.h.)

30:160 Introduction to World Politics

30:160 International Political Science

30:160 International America Policy

60:125 International Economics

60:125 United States in World Affairs

91:195 Human Rights in the World Community

91:195 Introduction to International Law

One course in each of the following areas, and three courses in the fourth area (18 s.h.).

War, Peace, and Security

This component of the Global Studies Program deals with the use of armed forces for the defense of states or as a continuum ranging from potential nuclear war to the individual act of terrorism. The approaches consider causes, effects, limitation, and resolution of violence in the contemporary world.

30:160 The Politics of War and Peace

30:160 War and Society

Economic Development and the Third World

This component of the Global Studies Program deals with the problems of poor and developing countries analyzed along economic, sociological, and political lines. Of special interest are the ways in which developed and developing countries interact, and how these interactions are thought to influence the character of and prognosis for the developing countries.

One of the following

11:151 Sociology of the Third World

42:159 Economic Development

19:157 Third World Development Support

19:157 Third World Development Support
In addition, students are advised to satisfy the General Education Requirement in quantitative or formal reasoning by taking a course in statistics.

World Area

Students will take a set 12 semester hours of courses that focus on a major world area other than the area with which the student is primarily familiar.

Areas and suggested languages for which there are sufficient course offerings at The University of Iowa are listed below. If a student wishes to study a particular area for which courses are not available in sufficient number (e.g., the Middle East), they may, with the approval of the program chair, be taken at another institution and transferred.

Asia

China (Chinese)
Japan (Japanese)
India (Hindi)

Western Europe

France (French)
Germany (German)
Great Britain
Western Europe (French, German, Spanish, Italian)

Eastern Europe and/or the Soviet Union
(Russian, German)

Latin America (Spanish, Portuguese)

Africa (French)

Because of the additional time required for some of these areas, students choosing Chinese or Japanese may use up 6 semester hours of language study, and those choosing Russian may choose 3 semester hours, as partial fulfillment of this requirement. A list of the courses that may be used to satisfy this requirement is available from the global studies chair.

Topical Concentration

Each student also develops a topical concentration (3 s.h.) focused on one of the following:

War, peace, and security: politics and diplomacy

Development and human resources

Environment and natural resources

These 15 semester hours include 3 semester hours of the honors project, which is due during the senior year and which ordinarily falls within one of these three categories. A list of courses that may be used to fulfill this requirement is also available from the global studies chair.

Courses

471 Global Interdependence and Human Survival

3 s.h.

Introduction to problems of the global studies Program; basic information, methods of understanding, and international relations; research projects and evaluation of new proposed solutions. Approved by section advisor to Count Global Studies Requirement. Offered fall semesters.

472 Introduction to African Affairs

3 s.h.

Interdisciplinary survey of the political, economic, and cultural life of Africa.

476H Freshman Honors Seminar

3 s.h.

By arrangement.

476H The Politics of Global Studies

By arrangement.

476H Contemporary World Problems Seminar

By arrangement.

476H Contemporary European News Colloquium

3 s.h.

476H African News Colloquium

3 s.h.

476H Global Studies Seminar

3 s.h.

476H Colloquium in International Relations, using foreign newspapers and periodicals.

476H Global Studies Colloquium

3 s.h.

476H Colloquium in International Relations, using foreign newspapers and periodicals.

Greek

See "Classics."

Undergraduate Program

Baccalaureate graduates in history work in a variety of positions in business, public service, or journalism. Many plan further training in history, law, religion, library, or information science, or social work.

A major in history includes work in other fields that will illuminate and expand the meaning of history courses as well as introduce the undergraduate to different bodies of information and approaches to understanding the ways societies and cultures work. For example, students majoring in history are encouraged to fill the College of Liberal Arts degree requirement in a foreign language by selecting a language that fits their history interests.

The general major is for students with a general interest in history. The program requirements are:

A minimum of 24 semester hours in courses offered by the Department of History numbered 1651 or higher, of which at least 12 semester hours must be in non-U.S. history courses; this limitation is imposed to assure acquaintance with the history of at least one other society besides our own.

Three semester hours in 1651 Colloquium for History Majors; a colloquium consists of a small number of students collectively studying problems in ways that give training and experience in group discussion, analysis, and criticism; it is best taken after the student has finished a number of other history courses.

Of the 24 semester hours of history required for the major, 12 (including the 3 semester hours of colloquium) must be taken in residence at The University of Iowa.

A minimum of 16 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology, or a second major in one of these areas; courses

Greek

See "Classics."

History

Chair: Malcolm F. Rothbrough

Ph.D.: Lawrence S. Katz, Ralph E. Greer, Joseph A. Galster, Charles A. Hall

M.A.: B. Bralhard, Henry C. Broumas, Sydney V. James, Linda K. Keating, Donald McCombs, Jacquelin Peterson, Marcus L. Rothenberg, David Schroeder, Alan B. Spence, Donald Sutliff

Professor Emeritus: William J. Dye, Stanley Mead, Steve Pomeroy


Assistant professors: Mitchell Allen, R. Thomas Stromgren, Katherine Taras, Jonathan Welton

Degrees offered: B.A., M.A., Ph.D.

The purpose of the Department of History 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 liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a period or aspect of history as background for their own specialized interests in other fields, and participates in several interdisciplinary programs, such as American civilizations, African-American World studies, Asian studies, Latin American studies, and women's studies.
tions to satisfy General Education Requirements will not be counted toward the related area requirement.

Students seeking the B.A. degree may earn 3 semester hours of the General Education Requirement in historical perspectives. They may not receive credit toward this requirement by taking any of the following courses taught by members of the history faculty: 16-111-135 Principles in Human History, 16-114 Western Civilization from 1700 to 1865, 16-120 Civilizations of Asia, 16-134 Civilizations of Africa. Each of these courses includes being in the 24 semester hours of history required for the general major in history.

Teacher Certification

Students majoring in history who wish to qualify for a teaching certificate must choose an area of concentration in history and meet these requirements:

American History Concentration

Courses in U.S. History (Including 16-151: Colloquium for History Majors)

- 30 s.h.

Courses in related areas

- 24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from among the following: economics, geography, world history (non-U.S. political science, sociology.

Students also must meet a special requirement in early European history by taking one of 16-116, 16-117, or 16-118 (3 semester hours). This course also may be counted toward the related area requirement in world history if that is one of the two areas chosen. Courses in economics, geography, political science, or sociology have been taken to satisfy the General Education Requirement in social science may be applied to the required hours in related areas, but no more than 12 semester hours may be applied to any one related area.

World History Concentration

Courses in non-U.S. History (including 16-151: Colloquium for 30 s.h. History Majors and one of 16-116, 16-117, or 16-118)

Courses in related areas

- 24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from the following: economics, geography, political science, sociology.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social science may be applied to the required hours in related areas, but no more than 12 semester hours of such course may be applied to any one related area.

Students seeking the teaching major in history also must complete the professional courses in the College of Education that are required for teacher certification. They should consult an advisor in the Education School for assistance in planning a program that will satisfy the major in history. The student must be admitted to the College of Liberal Arts Honor Program by the director of that program, and to the honors program in history by the Department. Application should be made by the beginning of the junior year, but may be made earlier. Successful completion of the honors major leads to the Bachelor of Arts degree with honors in history. Requirements are:

- A minimum of 24 semester hours in courses offered by the Department of History, of which at least 12 semester hours must be in non-U.S. history;
- A minimum of 15 to 16 semester hours in related courses (general major in history); at least 9 semester hours in the department’s honors courses, which may include up to 6 semester hours of honors essay credit.

Successful defense of an honors essay is required. History credits may be obtained in honors seminar, honors tutorial, and supervised research for the honors essay (the honors seminar fulfills the colloquium requirement of the general major).

The honors essay should be a 30-40 page paper based on original research in primary sources, a committee of three faculty members will hear a defense of the essay, usually in the 12th week of the student’s last semester.

Graduate Programs

The graduate programs in history prepare students to teach in high schools or colleges, and for such occupations as publishing, commercial research, government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, or historical site preparation and display. Some students enter the graduate School of law to degrees in both law and history (see the "College of Law" section of the Catalog). Qualified graduate students are invited to apply for fellowships and assistantships. All inquiries should be directed to the department office.

Master of Arts

There are two M.A. programs in the history department. The first is for students who plan to work toward the Ph.D. degree. It requires a minimum of 26 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours in history; at least six of these hours must be in the area of the student’s essay topic, and at least six semester hours must be in a seminar or a seminar in history and must be taken within the first two semesters of residence. Twelve semester hours must be in the area of the student’s essay topic, and at least six of these hours must be in a seminar or a seminar in history. The essay in the major division must be based on original research and should be approximately 10,000 to 15,000 words in length. The essay usually begins as a prospectus for the seminar in the major division and is completed as the following seminar, under the guidance of the supervisor, when the student is enrolled in 16-219 Individual Study: Graduate. The finished product should emulate the characters of articles in learned journals, just as the Ph.D. dissertation later on saves the form of a full-length scholarly monograph. The alternate plan for the M.A. is designed for students who do not intend to pursue the doctorate in history. The basic course requirements are much the same as those for the Ph.D.-track M.A. They are: 30 semester hours overall; 24 in history, 12 in one major division, including a minimum of just one reading or seminar course. The two plans differ mainly in respect to concentration in fields, whereas the Ph.D. track emphasizes the development of specialization in a particular field. The essay, the alternate plan stresses breadth of learning. Students in the alternate plan must take at least 6 semester hours in each of the other two divisions in history, or 6 semester hours in history and 6 semester hours in a related division. Included in these 12 semester hours must be at least one reading or seminar course.

After completing these requirements, or during the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive examination in the major division.

Doctor of Philosophy

Students who earn the M.A. with research essay 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 same requirements for admission to the Graduate college (see the "Graduate College" section of the Catalog), and must submit a specimen of their written work, such as a recent seminar paper, for review. They must take a research seminar during their last year of graduate school. The candidate must earn at least 72 semester hours of credit, including credit

Home Economics

All students majoring in home economics complete the following core:

17.95 Human Development and the Family 3 s.h.
17.41 Food, Nutrition, and You 3 s.h.
17.16 Design and the Environment 3 s.h.
17.90 Textiles for Consumers 3 s.h.
17.10 Management of Family Resources 3 s.h.
17.30 Junior: Home Economics 2 s.h.
Selection of additional courses in home economics is based on interests and professional goals.

Apartment, Fiber Art, and Design

Option 1: Apartment and Textile Merchandising

Students interested in interior and textile merchandising opt for development of the knowledge of apparel, design, marketing, and sales of apparel, and use of the concept of a liberal education in addition to the home economics core previously listed, the following courses are required:

17.30 Introductory Clothing Construction 3 s.h.
17.72 Apparel, Fashion, and Selection 3 s.h.
17.171 Fitting Problems and Flat Pattern Design 3 s.h.
17.173 Fashion Merchandising 3 s.h.
17.180 Textile Technology and Analysis 3 s.h.
17.185 Textile and Apparel Economics 3 s.h.

Undergraduate Programs

The undergraduate programs prepare students for immediate employment as professional home economists and for advanced study.

The home economics core provides a central body of knowledge and a basic understanding of relationships among the various subject areas within home economics. In addition to a major or a minor in home economics, the department supports joint programs with disciplines such as journalism, art, social work, and education.

In meeting the general requirements for the B.A. or B.S. degree of the College of Liberal Arts, students majoring in home economics need to select courses in other departments that also are prerequisites for home economics courses.
17:137 Food Service Systems
   Administration 3 s.h.
17:144 Human Nutrition 3 s.h.
17:146 Nutrition Laboratory 2 s.h.
17:147 Diet Therapy 3 s.h.
4/12.1 Principles of Chemistry I-III 6 s.h.
4/16 Principles of Chemistry Laboratory I 2 s.h.
4/21.2 Organic Chemistry I 3 s.h.
98:110 Biochemistry I 3 s.h.
6E1 Principles of Microeconomics 3-4 s.h.
6E1.100 Administrative Management 3 s.h.
7E1:131 Educational Psychology or 3 s.h.
7E1:170 (7W:167) Psychological
   Bases of Instructional Design 3 s.h.
34:1 Introduction to Sociology: Principles 3 s.h.
34:1.1 Elementary Sociology 3-4 s.h.
61:157 General Microbiology 5 s.h.
72:136 Human Physiology 4 s.h.
113:3 Introduction to the Study of
   Culture and Society 4 s.h.
Electives should be selected, according to the student's professional objective. From the
natural sciences, business administration, psychology, computer science, statistics, education, home
ecconomics, journalism and mass communication, instructional design and technology, counseling, social work,
antropology, sociology, or physical education.

This option follows minimum academic requirements of the American Dietetic
Association. From Fall of the freshman year
students aspiring for a postbaccalaureate internship should have that program completed.

During the first semester of the senior year.

Option 4: Family Studies

Students who want specialized training in individual and family life, interpersonal
skills, child development and parent-child relations, and in a family context,
marital relationships, aging studies, and financial management should select this option.
This option prepares students for careers in agencies and services concerned with the total family and its
functioning, for family life education, and for extension service. The following courses are required in addition to the home
ecomics core listed previously.

17:10 Growth and Development of
   the Young Child 3 s.h.
17:104 Adolescence and the Family 3 s.h.
17:108 Basic Aspects of Aging 5 s.h.
17:112 Personal Financial
   Management 3 s.h.
17:113 Marriage and Family
   Interaction 3 s.h.
17:114 Parent-Child Relationships 5 s.h.
17:122 Materials and Methods in
   Family Life Education 3 s.h.
17:900 Cooperative Education
   Program 6 s.h.
17:195 Home Economics Internship 1-4 s.h.
31:1 Elementary Psychology 3-4 s.h.

4/1 Introduction to Sociology: Principles 3 s.h.
34:12.1 The Family in Various
   Societies or 3 s.h.
34:14.1 The American Family 3 s.h.
6E3 Principles of Microeconomics 3-4 s.h.
6E3 Principles of Macroeconomics 3-4 s.h.
Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

Bachelor of Science

The B.S. degree is recommended for students who want greater depth or
breadth in the natural sciences and for those interested in entry-level positions in
research laboratories in colleges and universities, industry, or government.

Family Science

Option 1: Home Economics Education

Graduates can enter the careers described for the B.A., Family Science—Option 1. The
B.S. degree enables students to obtain greater depth and breadth in the natural and social
sciences by completing the following courses in addition to the courses required for the B.A., Family Science—
Option 1:

4/1-8 General Chemistry I/II 6 s.h.
A course in statistics or computer science 3 s.h.
Four courses from the natural sciences or four courses from the social
sciences numbered 100 or above 12-16 s.h.

Option 2: Nutrition

The natural science base of this option provides excellent preparation for graduate
work in food and nutrition. In addition to all of the courses listed under Family
Science—Option 2 for the B.A. degree, the B.S. degree requires the following courses:

22M:2-3 Basic Algebra 3 and Basic
   Geometry or high school equivalent 6 s.h.
22M:19 Elementary Functions or high
   school equivalent 3 s.h.
4/12 Calculus I 4 s.h.
29.18:12 College Physics 8 s.h.
4/131 Physical Chemistry for the
   Life Sciences 3 s.h.
99:140 Experimental Biochemistry 4 s.h.
For this option, enrollment in 99:120 and 99:130 is recommended in place of 99:130.

Cooperative
   Education/Internship Program

The department participates in the University's Cooperative Education Program, which enables students to obtain
work experience related to their professional goals and academic programs. Majors who meet the department's

requirements may apply to the department's cooperative education committee to participate in this program. Students
may take for 15 credit hours of Cooperative Education Internship at 15 credit hours of Home Economics Internship during the
subsequent semester.

Honors

To be eligible for honors, the student must have junior standing, 30 semester hours in
residence at the University, an overall cumulative grade-point average of 3.5 or above, a grade-point average of 3.2 in all
home economics courses, and at least 15 semester hours completed in home economics. Honors work consists of 15 s.h.
Honors Section: Home Economics and 17:122 Honors Problems: Home Economics, in which students do creative work or a
research project. A written report or honors thesis and an oral examination are required.

In addition, students may contract with an instructor to receive honors credit for any 100-level or above home economics course of
the contract, which must be approved by the Honors Program, specifies the work the student must complete to receive the
honors credit for the course.

Minor

A minor in home economics is available for students majoring in other departments.
The home economics minor requires 15 semester hours. Home economics courses
takes in residence at The University of Illinois, including at least 12 semester hours in
100-level or above courses. Home economics courses taken at other institutions, by correspondence, or on a
pass-no-pass basis will not apply toward requirements for the minor in home economics. Students pursuing a minor in
home economics are encouraged to obtain a home economics faculty member when selecting courses.

Graduate Programs

The demand for well-qualified professional home economists exceeds the number of graduates with advanced degrees. The
master's degree graduate may qualify for positions in colleges, secondary schools, business, industry, and government.
The graduate programs enable students to gain depth through specialization in one of two subject areas: apparel, fiber art, and
design, or family science. The department offers both thesis and nonthesis tracks. The thesis track is recommended for students preparing
for teaching and research in colleges and universities, positions in industry, and
continued study beyond the master's degree. The nonthesis track permits more
intensive experience in research procedures or the opportunity for extensive
creative work. The thesis may be undertaken in the department or in cooperation with related departments or colleges.

To be admitted unconditionally, the student must have an overall grade-point average of 2.8, with 3.0 in the area of major interest in graduate study. Conditional admission requires an overall grade-point average of 2.5 with 2.8 in the area of major interest in graduate study. Applicants interested in fiber art or interior design must present an acceptable portfolio and must meet the necessary grade-point requirements for regular admission.

Master of Arts, Master of Science

For either the Master of Arts (M.A.) or Master of Science (M.S.) degree, students must complete a minimum of 30 semester hours of graduate work with a thesis, or 36 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. Students without an unexcelingly strong background in their subject area may need to take additional coursework and should anticipate taking the minimum hours specified for the degree. Students who lack required background courses will be required to complete those courses early in their programs, and such courses will not apply to the student's graduate program. Approximately one-third of the student's coursework is completed in departments other than home economics; this support work must have breadth and depth and the courses must be taken for a letter grade except under special conditions. Students selecting the M.S. degree program should anticipate additional courses in the social or physical sciences that will be determined in consultation with their advisor.

All students in the M.A. and M.S. programs are required to take an introduction to methods and philosophy of Home Economics and a minimum of three semester hours of 17:302 Research Methods and/or 17:203 Form and Structure in Art. Those in the thesis track also complete 17:291 Research Problems and 17:252 Advanced Studio Problems and 17:219 Thesis. Those in the nonthesis track also complete 17:290 Special Projects Seminar.

All degree options require written and oral comprehensive examinations.

Apparel, Fiber Art, and Design

Graduate study in apparel, fiber art, and design may be planned as a specialized program to fit the individual's program in apparel, fiber art, or design. Each student's program will be developed in consultation with the academic advisor according to the needs and goals of the student and the requirements of the specialization. Applicants interested in fiber art or interior design must present an acceptable portfolio and must meet the necessary grade-point requirement for regular admission. Applicants interested in apparel need a background in apparel, textiles, mathematics, and natural science and must meet the necessary grade-point requirement for regular admission.

Career opportunities for the graduate student pursuing this area of home economics include merchandising, textile research, teaching, extension, interior design, fiber art, historic preservation and restoration, and positions in business and industry. Students may select the Master of Arts with or without thesis or the Master of Science with or without thesis. It is expected that the thesis track will be selected by the individual who plans to become a college teacher, who wishes to continue study toward the M.F.A. or Ph.D. degrees, or who intends to do historic preservation and restoration.

Required courses in addition to those stated previously are:

17:250 Readings in Apparel, Fiber Art, Design 2-3 s.h.
One of the following:
17:350 Advanced Problems in Interior Design 3 s.h.
17:260 Graduate Workshop in Fiber 3 s.h.
17:282 Experiential Textiles 2-3 s.h.
One of the following:
17:150 Survey of Historic Interiors 3 s.h.
17:156 Survey of Modern Interiors 3 s.h.
17:162 Weaving 3 s.h.
17:166 Housing: Social and Psychological Aspects 3 s.h.
17:183 Textile and Apparel Economics 3 s.h.
17:185 Costume History 3 s.h.
A course in statistics (depending on interest) 3 s.h.
Other courses may be required depending on the background of the student. Electives in anthropological, art, art therapy, business administration, chemistry, classics, education, history, journalism, photography, psychology, radio and television, sociology, speech, therapy, design, and urban and regional planning may be selected to strengthen the individual student's program.

Family Science

Graduate study in family science may be planned as a specialized program in family studies, aging studies, nutrition/nutrition education, or home economics education. Each student's program will be developed in consultation with the academic advisor according to the needs and goals of the student and the requirements of the specialized program. Depending on the major area of interest, the student will need background courses in education, sociology, psychology, social work, food, nutrition, food service systems, general organic chemistry, mathematics, physiology, and microbiology. Career opportunities for the graduate student pursuing this area of home economics include work with agencies concerned with the family, college and university teaching, work as a nutritional, dietitian, nutrition research specialist, or extension specialist, and positions in industry and business.

Students may select the Master of Arts with or without thesis or the Master of Science with or without thesis.

Required courses in addition to those stated previously are:

Two to three of the following:
17:211 Individual and Family Development: Life Span 3 s.h.
17:212 Theory and Research in Family Studies 3 s.h.
17:215 Seminar: Family or Consumer Studies 3 s.h.
17:223 Seminar: Home Economics Education 3 s.h.
17:225 Seminar: Food and Nutrition 3 s.h.
17:226 Seminar: Family Science 3 s.h.
17:245 Seminar: Educational Strategies in Family Finance 2 s.h.
17:246 Readings in Family Science 3 s.h.
A course in statistics 3 s.h.
Other courses may be required depending on the background of the student. Electives in anthropology, biochemistry, chemistry, communications, computer science, economics, education, home economics, journalism, microbiology, preventive medicine and environmental health, sociology, social work, sociology, or statistics will strengthen the individual student's program.

Master of Arts in Teaching

The Master of Arts in Teaching program is designed for students with an undergraduate degree in home economics who have had an academic or professional education course. The program is nonthesis and requires written and oral comprehensive examinations. Graduates receive a home economics teacher's certificate with vocational approval. Applicants must have a bachelor's degree in home economics and a 3.0 minimum undergraduate grade-point average, and must be admitted to the M.A.T. program in the College of Education.

The program requires 20 semester hours of graduate course work in education and at least 18 semester hours of graduate work in home economics. For certification, the student must complete (at the undergraduate and graduate level) a course in American politics or American government, 17:119 Human Relations for the Classroom Teacher, and two courses in each of the following housing and interior design, family development, food and nutrition, family management, and textiles and clothing.

Other courses required for the M.A.T. program are:

C 136 LIBERAL ARTS/Home Economics
A limited number of assistantships are available to graduate students.

Courses

Primary for Undergraduates

17.121 Dreams of the Undergraduate

17.864 Cooperative Education Internship 1-6

17.105 Development and the Family 3

17.106 Growth and Development of the Young Child 1

17.117 History of Western Education 2

17.116 Philosophy of Education 2

Certification Program

Students with the B.A. or B.S. degree in home economics may enroll in the certification program in order to meet requirements for teaching vocational home economics in secondary schools. Courses for this program are selected according to the student's background and professional goals. See the "College of Education" and "Secondary Education" sections of the Catalog.

Financial Aid

Several annual departmental awards recognize undergraduate students for their outstanding qualities and performances. The Faculty Book Award recognizes the sophomore home economics major with the highest grade-point average. The student in each class with the highest grade-point average, provided the grade-point average is at least 3.7, is awarded a Certificate of Outstanding Academic Achievement. The Margaret Foster Hull Award of $500 for high scholarship is given to a student for his or her senior year. Each Home Economics Honor Society chapter provides awards to undergraduate students for leadership in financial need. The Myra Lee Sprenger Memorial Award is given to an outstanding home economics senior. The Mary Goodyear Barns Senior Scholastic Achievement Award is given to the senior with the highest grade-point average during the junior and senior years. Omicron Nu, a home economics honor society, awards undergraduate scholarships. There is also the Home Economics Student Association for graduating seniors.

Four scholarships are for graduate students. The Mary Campbell Tolson Scholarship is given to a student beginning graduate study. The Mary Goodyear Barns Graduate Scholarship is awarded to the graduate student with the highest grade-point average during the junior and senior years as a home economics major at The University of Iowa. The Iowa Home Economics Association provides one scholarship, and the Omicron Nu Award is for excellent scholarship. Omicron Nu awards a graduate student scholarship. Each of the Outstanding Academic Achievement are given to graduate students who maintain a 3.5 grade-point average.

17.118 Basic Aspects of Aging 3

17.122 Curriculum: Home Economics 3 s.h.

17.128 Evaluation: Home Economics 3 s.h.

17.129 Educational Psychology 3 s.h.

17.130 Methods: Home Economics 3 s.h.

17.191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.

17.167 History of Western Education 3 s.h.

17.117 Philosophy of Education 2 s.h.

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Financial Aid

Several annual departmental awards recognize undergraduate students for their outstanding qualities and performances. The Faculty Book Award recognizes the sophomore home economics major with the highest grade-point average. The student in each class with the highest grade-point average, provided the grade-point average is at least 3.7, is awarded a Certificate of Outstanding Academic Achievement. The Margaret Foster Hull Award of $500 for high scholarship is given to a student for his or her senior year. Each Home Economics Honor Society chapter provides awards to undergraduate students for leadership in financial need. The Myra Lee Sprenger Memorial Award is given to an outstanding home economics senior. The Mary Goodyear Barns Senior Scholastic Achievement Award is given to the senior with the highest grade-point average during the junior and senior years. Omicron Nu, a home economics honor society, awards undergraduate scholarships. There is also the Home Economics Student Association for graduating seniors.

Four scholarships are for graduate students. The Mary Campbell Tolson Scholarship is given to a student beginning graduate study. The Mary Goodyear Barns Graduate Scholarship is awarded to the graduate student with the highest grade-point average during the junior and senior years as a home economics major at The University of Iowa. The Iowa Home Economics Association provides one scholarship, and the Omicron Nu Award is for excellent scholarship. Omicron Nu awards a graduate student scholarship. Each of the Outstanding Academic Achievement are given to graduate students who maintain a 3.5 grade-point average.

17.118 Basic Aspects of Aging 3 s.h.

17.122 Curriculum: Home Economics 3 s.h.

17.128 Evaluation: Home Economics 3 s.h.

17.129 Educational Psychology 3 s.h.

17.130 Methods: Home Economics 3 s.h.

17.191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.

17.167 History of Western Education 3 s.h.

17.117 Philosophy of Education 2 s.h.
One production course, selected from:
- 19:122 Broadcast Journalism Workshop
- 19:131 Photography I
- 19:141 Introduction to Typography
- 19:162 History of Design and Production
- 19:171 Mass Communication Lab
- Journalism electives
Total required

Mass Communication Inquiry

Sequence

This sequence emphasizes the acquisition of knowledge about communication and concentrates on studying communication as a way of comprehending society and human interaction. Students take courses that focus on historical, philosophical, and social scientific modes of understanding. Career possibilities for students in this sequence include public relations, media research and public opinion polling, or other related careers. Many students continue with graduate studies in journalism, mass communication, or other disciplines. These are the required journalism courses:

Pre-major courses (19:90 and 19:91)
- 19:151 Communication Research Methods
Two or more courses, selected from:
- 19:150 Visual Communication
- 19:122 History of Design and Production in the United States
- 19:153 Popular Culture and Mass Communication
- 19:154 Economic and Technological Issues in Media
- 19:155 Media and Society
- 19:156 Comparative Communication Systems
- 19:157 Third World Developments Support
- 19:158 News-Editorial Programs
- 19:159 Electoral Publics and the Mass Media
- 19:161 Law and the American Media
- 19:172 Seminar in Mass Communication Research

Total required

Minimum journalism credits allowed toward graduation: 37 s.h.

Bachelor of Arts

Requirements for the Bachelor of Arts are:
- Four semesters of a foreign language;
- Pre-major courses;
- School required courses;
- Sequence courses;
- Fulfillment of the school's second area of concentration requirement in one of two ways:
  - A full B.A. major in another department;
  - A 24-semester-hour concentration beyond the general education level;
- This concentration should be designed by the student in consultation with his or her adviser.

Bachelor of Science

Requirements for the Bachelor of Science are:
- Two semesters of a foreign language;
- Pre-major courses;
- School required courses;
- Sequence courses;
- Six semester hours of social or natural science methods courses;
- Fulfillment of the school's second area of concentration requirement in one of two ways:
  - A full B.S. major in a natural or social science;
  - A 24-semester-hour concentration in the natural or social sciences, beyond general education level. This concentration should be approved by the student in consultation with his or her adviser.

Bachelor of Journalism

Freshmen and upperclassmen with outstanding academic records may participate in the College of Liberal Arts Honors Program. These students should see the departmental honors program advisor as soon as possible. After admission to the honors program, students must:
- Carry out additional work under the guidance of an instructor in the context of one of the advanced conceptual courses (numbers 19:150 through 19:161) in journalism and mass communication;
- Enroll in 19:191 Honors Colloquium for 3 s.h.;

Write an honors thesis under the supervision of a journalism faculty member.

Make a formal presentation of the honors thesis to a committee consisting of a faculty advisor, the coordinator of the honors program, and a third faculty member of the student's choice.

Minor

To meet the requirements for a minor in journalism and mass communication, students must complete at least 15 semester hours in journalism and mass communication. The following courses are strongly recommended:

Social Scientific Foundations of Communication
Cultural and Historical Foundations of Communication
Cultural and Historical Foundations of Communication

The minor is not intended to be sufficient professional preparation for a career in journalism or mass communication. The minor should be regarded only as a cursory introduction to the field.

Transfer Students

All transfer students will be classified initially as premajors. They will apply for major status after earning at least 50 credit hours (excluding those from Iowa and other institutions) and completing 19:90 Social Scientific Foundations of Communication and 19:91 Cultural and Historical Foundations of Communication. Neither of these courses will be waived on the basis of work taken at other institutions. Thus, a transfer student will be a premajor for at least one semester.

The school's policy is to accept journalism transfer credits from another institution for up to, but not more than, 20 percent of the student's total number of credits toward a major in journalism at Iowa. Other course work taken elsewhere might be applicable toward fulfilling elective and second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the student's journalism advisor at Iowa.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with three separate emphases: professional journalism, communication, and mass communication, or development support and management. Applicants should indicate the emphasis to which they are applying.

Each emphasis requires 30 semester hours of approved course work, the completion of a master's project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.
Professional Journalism Emphasis

This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in Ph.D. work. There are programs for those who have expertise in journalism and communication and for those who do not.

Program requirements for students with no academic or professional experience in journalism and communication:

19:220 Master's Seminar 3 s.h.
19:220 News Reporting and Writing 3 s.h.
(does not count toward M.A. degree) 19:226 News Editing 3 s.h.
19:226 News Editing 3 s.h.
19:231 Mass Communication Laboratory 3 s.h.
(19:231 option intended for students with special interest in public relations or organizational communication)
Electives 18 s.h.
19:235 Master's Research (thesis) 3 s.h.
Final examination, last period of enrollment

Program requirements for students with professional experience in journalism or communication:

19:220 Master's Seminar 3 s.h.
Electives in the school (minimum) 9 s.h.
Electives in other departments up to 15 s.h.
19:226 Master's Research 3 s.h.
Final examination, last period of enrollment

Students must complete a major professional project (19:226) under supervision of a graduate faculty member during the last period of enrollment.

Study a select elective course in the school and in other departments in consultation with their advisors.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis on theory and methodology. Qualified individual may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the 72-hour program after successful completion of their M.A. work.

Program requirements:

19:220 Master's Seminar (two semesters) 2 s.h.
19:221 Approaches to the Study of Communication Issues and Concepts 3 s.h.
One of the following methods 3 s.h.
19:240 Communication Research: Historical Approaches 3 s.h.
19:241 Communication Research: Behavioral Approaches 3 s.h.
19:242 Communication Research: Phenomenological Approaches 3 s.h.
19:243 Communication Research: Legal Issues Approaches 3 s.h.
Electives in journalism and mass communication and in other departments 15 s.h.
19:239 Master's Research 3 s.h.
Final examination, last period of enrollment

Students are expected to take coursework outside the School of Journalism and Mass Communication with the nature and extent of the work to be determined by the student and faculty advisor.

Development Support Communication:

This multidisciplinary emphasis involves the cooperation of the departments of Communication and Political Science. It is intended for students seeking to gain analytical and technical expertise and an understanding of the role and function of mass communication in the process of helping solve Third World development problems. The emphasis offers both nonthesis and thesis tracks.

Non-thesis Track

The non-thesis track is for students who do not plan to engage in subsequent Ph.D. work. These students must, during the last period of their enrollment, complete a major professional project (19:226) under the supervision of a graduate faculty member. Program requirements for the professional track include:

Journalism

19:220 Master's Seminar 3 s.h.
19:307 Third World Development Support 3 s.h.
19:236 Communication Systems 3 s.h.
19:231 Mass Communication Laboratory 3 s.h.
19:239 Master's Research (Project) 3 s.h.
Geography

44:294 Geographic Perspectives on Development 3 s.h.
Political Science

30:350 Political Economy and Public Policy in Developing Countries 4 s.h.
Electives 11 s.h.
Total 30 s.h.

Thesis Track

The thesis track is for students intending to petition for admission to the Ph.D. program upon completion of M.A. work. These students must, in the last period of their enrollment, complete a thesis (19:226) under the supervision of a guidance committee composed of two graduate faculty members. Program requirements for the philosophical track include:

Journalism

19:240 Master's Seminar 3 s.h.
One of the following: 3 s.h.
19:206 Comparative Communication Systems 3 s.h.
19:207 Third World Development Support 3 s.h.
19:240 Communication Research: Historical Approaches 3 s.h.
19:241 Communication Research: Behavioral Approaches 3 s.h.
19:239 Master's Research (thesis) 3 s.h.
Geography

44:294 Geographic Perspectives on Development 3 s.h.
Political Science

30:500 Political Economy and Public Policy in Developing Countries 4 s.h.
Electives 11 s.h.
Total 30 s.h.

Students with no professional or academic experience in mass communication are encouraged to take the undergraduate foundation course 19:00 Social Scientific Foundations of Communication. This course, however, does not count toward the M.A. degree.

Students choose elective courses in the school and in other departments in consultation with their advisors.

Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such inquiry implies that an understanding of these phenomena cannot arise solely out of narrowly focused analyses of present conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into relationships between mass media and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, who tutor most frequently to investigations of historical, legal, economic, social, and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and individualized studies.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of students working to understand mass communication in its cultural contexts. A more complete description of
Courses Approved for LASP Certificate

For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Anthropology
313:155 Ethnology of South America 3 s.h.
313:156 Ethnology of Mesoamerica 3 s.h.
313:158 Social Anthropology of the Caribbean 3 s.h.
313:159 Latin American Economy and Society 3 s.h.
313:162 Latin American Studies Seminar 3 s.h.
313:163 Archaeology of Mesoamerica 3 s.h.

Art
16:105 Art of Pre-Columbian America 3 s.h.

History
16:111 Colonial Latin America 3 s.h.
16:112 Introduction to Modern Latin America 3 s.h.
16:113 The Mexican Revolution 3 s.h.

Political Science
30:144 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.
30:160 Inter-American Relations 2-3 s.h.

Portuguese
38:103 Modern Brazilian Fiction I: Short Story 2 s.h.
38:104 Modern Brazilian Fiction II: Novel 2 s.h.
38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:107 Nineteenth-Century Brazilian Fiction 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World (Taught in English) 3 s.h.
38:150 Latin American Studies Seminar 3 s.h.

Spanish
35:29 Contemporary Latin American Literature (Taught in English) 3 s.h.
35:156 Contemporary Spanish American Fiction 3 s.h.
35:152 Spanish American Poetry 3 s.h.
35:153 Spanish American Drama 3 s.h.
35:154 Short Story of Spanish America 3 s.h.
35:170 Literature of the Discovery and Conquest of Spanish America 3 s.h.
35:172 Spanish American Literature of Fantasy 3 s.h.

35:176 Latin American Studies Seminar 3 s.h.

Library and Information Science

Director: Carl Orgen
Professor emeritus: Velma Jean Robb
Associate professors: Carl Orgen, James Rice
Associate professor emeritus: Lexane L. Noonkester
Assistant professors: Gitter Biehleman, Terrence Brooks, B. Patrick Gooch, Gerald Hughes, Kathleen Treenor
Lecturer: Ethel Beanzer
Adjunct professor: Dinae Nimmer
Affiliated faculty: Kay Arnet, Dave M. Bents

Judy W. Beanzer, Dean

Degree offered: M.A.

The School of Library and Information Science offers a program of professional preparation for careers in all types of libraries and information centers—public, school, academic, and special. It seeks to recruit and prepare librarians and information professionals, to contribute to the advance of librarianship through research, and to provide public service.

The program is accredited by the American Library Association.

Program Goals and Objectives

The goals of the School of Library and Information Science are:

To offer a graduate program of basic professional preparation in library and information science that reflects the variety and growth of information needs felt by society and individuals;

To engage in research that increases understanding of the variety of information needs and of the actions that can be taken to provide for these needs;

To provide public service through continuing education and consulting and through association and other professional service, so that growth is fostered beyond the student's basic professional program, and so that people have the information service they need.

Instructional Objectives

Upon completion of the program the student will be able to:

Demonstrate an understanding of the history and theory of library and information science sufficient to recognize their role in today's society, and the library's importance in the communication process;

Articulate a philosophy of librarianship that includes an understanding of intellectual freedom and free dissemination of information; a professional attitude toward the librarian's role as mediator between user and information, and a commitment to improve the quality of library and information services in response to the needs of all segments of society;

Demonstrate an understanding of information sources, the flow of information through society, and the role of libraries and information centers in the process;

Demonstrate an appreciation for the contribution that information, libraries, and learning can make to the richness of life, and the ability to convey that appreciation to others;

Demonstrate mastery of the techniques and procedures of effective information service (that is, the selection, acquisition, organization, and presentation of information);

Identify and use bibliographic techniques and sources of information in a broad range of media formats as a variety of fields of knowledge;

Articulate an understanding of management theory and practice sufficient to plan library and information services and perform the professional responsibilities of identifying needs, setting goals, analyzing problems, implementing programs, and evaluating results;

Cite and evaluate research that helps in the advancement of the profession and cite and evaluate the contributions to librarianship made by related disciplines;

Demonstrate a commitment to professional growth.

Research Objectives

To engage in research on library and information problems that advances both theoretical and practical knowledge.

To give emphasis to research that directly supports the instructional
program of the School of Library and Information Science or that may have special relevance to library service in the state of Iowa.

Public Service Objectives
To offer library and information personnel and library users opportunities for continuing education that advances and updates their awareness of current developments in library operations and information services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library and information service for the citizens of Iowa and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels.

Undergraduate Study
Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science courses (100-level). No courses numbered 100 or above may be taken by freshmen or sophomores. No courses numbered 200 or above may be taken by undergraduates.

Graduate Programs
Graduate Students Not Admitted to Master of Arts Program
Graduate students not yet admitted to the master's program in library and information science may be admitted, upon request to the director, to take one course during the application process. This course may later apply to requirements for the degree. Graduate students in other programs may take a course with the approval of the director and the instructor of the course. This allows access to courses, such as those in subject bibliography, which may be relevant to the student's major program.

Master of Arts
Professional preparation for careers in all types of libraries is provided by the school's Master of Arts Program.

The school also offers a nondegree graduate program for certification in school librarianship, as well as a certification program leading to the master's degree. Its graduates hold positions in public, school, academic, and special libraries, serving in such roles as administrators, bibliographers, catalogers, reference specialists, information scientists, and children's librarians.

The Master of Arts degree in library and information science requires 33 semester hours of graduate credit with a minimum grade-point average of 3.5. In addition, the student must pass a comprehensive examination.

Basic Plan of Study
The program consists of a core of required courses basic to all areas of librarianship, and electives. The student's plan of study should be developed carefully in relation to career objectives. All courses to be applied to the 33-semester-hour program must be approved by the advisor.

Required core courses (required of all M.A. candidates) 15 s.h.
21:55: Reference
21:52: Description and Organization of Materials I
21:53: Foundations and Collection Development
21:50: Management of Libraries and Information Centers
21:246: Introduction to Information Science

Electives 18 s.h.

It is strongly recommended that the student's electives include a sublibrary course, a type-of-library course, and a course in research methods.

Elective courses chosen in other University departments must be an integral part of the master's program for library and information science. Although many offerings other clubs and intercollegiate sports for librarianship, they cannot be chosen to warrant replacement of needed courses in a brief one-year program. Electives outside the department must be earning satisfaction to the School of Library and Information Science, and must not exceed 4 semester hours for students having no previous course in library science or 9 semester hours for those with such previous courses. Only courses taken for graduate credit may be counted towards the 33-semester-hour requirement.

The thesis option is not intended to replace courses in a student's basic preparation. It is available if the student completes the full 33-semester-hour program, but it may count as part of the 33 semester hours if a student chooses to the program with an extensive course work in library science. In other cases, the thesis option may be taken during or after completion of the regular program as long as the student has completed 21:240 Research Methods, or the equivalent. The purpose of the thesis option is twofold: to expand research competence and to provide one means of independent study to a student with extensive preparation in library and information science.

A minimum of 9 summer hours of graduate credit may be accepted in transfer as applicable to the master's degree in library and information science at The University of Iowa, provided that:

The work was done at the graduate level in an American Library Association (ALA) accredited program, and was not applied toward a previous degree;

The grade received was "A" or "B".

The director evaluates the elapsed time since the course work was done and determines, in coordination with the student, the work to the student's program.

An examination may be required on the subject matter as further evidence of competence in the subject course.

The program requires at least two semesters and one summer of resident study or, in the case of students attending summer only, a minimum of four-semester sessions. Maximum graduate course load is 15 semester hours in regular semesters, 9 semester hours in summer sessions. The maximum course load may not be advisable for those with substantial employment or other external responsibilities.

Public Library Work
Public funds support public libraries in order to provide informational, educational, and recreational circulating materials, and a wide range of services for a diversified clientele. Public libraries usually receive the largest part of their funding from local taxes, but often are organized on a regional or statewide cooperative basis. The variety of core services, materials, and organizational structures of public libraries makes the area of librarianship a challenging one.

A major concern of public librarians is to design innovative service programs to reach segments of the population that are not served, or to provide a full range of services to all members of the community. Management skills often are needed to meet these services.

Plan of Study
Required core courses 15 s.h.
Suggested electives 18 s.h.
21:13: Library Services to Adults
21:23: The Public Library
21:24: Information Storage and Retrieval
21:249: Research Methods
21:31: Advanced Reference
21:32: Description and Organization of Materials
21:082: Practicum in Libraries

Bibliography courses
Courses relating to service to children and young adults:
21:13: Literature for Children I
21:14: History of Books for Young People
21:256: Literature and Storytelling for Children
21:193: Literature for Adolescents
School Library Media Work

The school library media center makes available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the media specialist includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference services.

To qualify as a school library media specialist in the state of Iowa, students must hold a valid teaching certificate and be appropriate endorsement for school library work. School library media certification requirements, however, vary widely from state to state. The requirements set forth in this program are designed to meet Iowa’s endorsement for school library work. Since the requirements for Iowa endorsements are relatively comprehensive, students who want to pursue school library media work but who do not plan on working in Iowa are encouraged to follow the program listed below. Students who do not hold a valid teaching certificate need to consult with their advisor before pursuing this program.

The program given below is designed to prepare students for a K-12 endorsement, and courses suggested that will prepare them to work both in elementary and secondary situations. The School Library Media Center Practicum course is only offered during spring semesters. It requires work in a school library other than the one in which the student may be employed.

Plan of Study

Required core courses 15 s.h.

Suggested electives 18 s.h.

21:232 The College and University Library 3
21:247 Information Storage and Retrieval 3
21:249 Research Methods 3
21:251 Advanced Reference 3
21:252 Description and Organization of Materials II 3
21:255 Government Publications 3
21:264 Medical Librarianship and Bibliography 3
21:305 Law Librarianship, Bibliography, and Research Techniques 3
21:302 Practicum in Libraries 3
79:117 The Community College (required for those enrolling 75 or more credit hours in community colleges) 3

Work in Special Libraries

Special Librarianship includes careers in information centers serving banks, industrial firms, museums, historical societies, and law firms. The ability to design service programs for the purpose organization, and substantive subject knowledge in the relevant area are characteristics essential in such a career. Indexing, abstracting, literature searching and analysis, design of information systems, translation, and current awareness services are found more especially in special library work than in more traditional libraries.

Plan of Study

Required core courses 15 s.h.

Suggested electives 18 s.h.

21:262 Special Libraries 3
21:262 The College and University Library 3
21:247 Information Storage and Retrieval 3
21:249 Research Methods 3
21:251 Advanced Reference 3
21:252 Description and Organization of Materials II 3
21:255 Government Publications 3
21:264 Medical Librarianship and Bibliography 3
21:265 Law Librarianship, Bibliography, and Research Techniques 3
21:302 Practicum in Libraries 3

Iowa School Library Media Certification, K-12

The school offers approved programs for Iowa state certification in these areas: school librarians for kindergarten through grade 12 (Iowa endorsement 34) and director of library services for kindergartens through grade 12 (Iowa endorsement 11). Since these endorsements are relatively new, students must hold a valid Iowa teaching certificate to qualify for these endorsements.

Students who complete a M.A. degree with the program listed under “School Library Media Work” will qualify for endorsements 34 and 51.

Endorsement 34 may be obtained by taking 18 semester- hour courses at the graduate level and passing the comprehensive examination for this endorsement. Students who hold the master's degree and wish to add this endorsement to their teaching certificate must gain the endorsement by passing the state comprehensive examination for this endorsement.

Endorsement 51 may be obtained by taking 21 semester-hour courses at the graduate level and passing the comprehensive examination for this endorsement. Students who hold the master's degree and wish to add this endorsement to their teaching certificate must gain the endorsement by passing the state comprehensive examination for this endorsement.

Iowa Community College Certification

The school offers an approved program for librarianship resource specialist in an area vocational school or community college (Iowa endorsement 75). Students receive this endorsement upon completion of the M.A. degree with the program listed under “College and University Library Work” and 79:117. The Community College. A teaching certificate is not required for this certification program.

Students wishing to pursue community college work in another state may want to take 79:117 The Community College as an elective.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other University units have as their primary goal the integration of the two areas of study, allowing the student to contribute to one discipline the insights and experiences gained in the other.

Although there is a mechanism by which degree programs in the School of Library and Information Science in an ad hoc basis, the School of Library and Information Science has established formal programs with the College of Law and College of Business Administration.

The student enrolled in such a joint program works with an advisor in the School of Library and Information Science to ensure the benefit of integration.

 Objectives of a joint program must be consistent with the goals stated above, and since the role of each student is unique, are a matter of advising. For instance, a student who expects a career in a law or business library requires a different sequence of courses than one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program the student must apply to and be accepted by the School of Library and Information Science and the School of Library and Information Science.
Individuals and to an interest in their professional development. All courses to be applied to the 3-term broadly program must be approved by the advisor.

Student Activities

Students take a variety of activities available in and add to their academic and professional development, such as career advisement, workshops, seminars, field trips, and topical conferences provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation. The Library and Information Science Student Organization (LISSO) is composed of all students accepted into the M.A. program. The Executive Committee of LISSO (ECL) serves as a liaison between students and faculty administration in matters of common concern, and as a planning group for student activities. ECL sends a representative to faculty meetings.

Placement

The school provides active placement assistance to its graduates by means of bulletin board announcement, senior+ on resume-writing and interviewing, and personal counseling. The University's Educational Placement Office is a weekly listing of job openings and provides a confidential file service.

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and the other unit chosen. Up to 6 semester hours of each may be applied toward the M.A. in library and information science and up to 9 semester hours toward the M.B.A. or 12 semester hours to the ID. If no one course a student receives two degrees with fewer than 60 semester hours of graduate work, and graduate students usually require substantially more than this.

Facilities and Resources

The School of Library and Information Science is located conveniently in the south wing of the University's Main Library, providing facilities for the varied instructional and research activities of the school.

Media Lab and Davison

A media lab contains equipment and space for slide tape production, videocassette recording, filmstrip production, film/ film previewing, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities

An on-line lab includes three CRT terminals, one desktop terminal, and a personal computer. This equipment provides local computing access to the University's Computing Center, and access to the University's bibliographic databases and OCLC. In various courses, students learn to write programs, design information systems, conduct database searches, recall and manipulate bibliographic records in the OCLC database, and perform statistical analyses.

Statewide Reference Service

The school serves as one unit of a state network of academic and public libraries. Students provide back-up reference service to librarians throughout the state, using learned skills to perform bibliographic verifications and to answer reference questions. The service helps students reinforce and integrate classroom instruction and provide reference experience.

Departmental Library

The library science library, one of 12 departmental branches of the Main Library, is located within the school quarters. The collection contains approximately 11,500 volumes and 200 periodical titles related to the study or practice of library and information science. Carrell contains AV equipment for viewing library materials. Tables, chairs, and easy chairs allow 4 choice of study seating, and the atmosphere is casual and friendly.

University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two and one-half million volumes in the Main Library and 12 Departmental Libraries. An average of 80-90 thousand volumes is acquired annually. The serial collection is extensive, with more than 32 thousand current subscriptions. The third floor of the Main Library houses the government publications, map, and special collections rooms, as well as an audio-visual area. The location of the School of Library and Information Science on this floor allows quick access to these frequently used resources. Students have access to the second-floor closet of computer terminals linked to the Computing Center.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experiences, and personal use; the State Historical Society Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries; the C. Ur, Cornell, and Grinnell college libraries; and the Herbert Hoover Presidential Library in West (Brandy). The Iowa City Public Library, located only five blocks from the Main Library, was one of the first public libraries in the nation to convert to a fully computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources


Weing Computing Center 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. Each graduate student is provided with a small local account by the Graduate College.

Faculty Advising

Graduate students are each assigned an advisor upon admission. Students are encouraged to discuss career objectives and problems with other faculty members as well. The enrollment of students in the school allows faculty members to get to know students

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Financial Aid
The School of Library and Information Science awards partial-tuition scholarships, as well as several types of graduate assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average and combined verbal-quantitative score of 1050 on the GRE General Test. Those who do not meet these requirements may still be considered for graduate assistantships. To obtain further information, contact the Office of Student Financial Aid, Calvin Hall. For information on financial aid available for minority students, contact the Office of Special Support Services, Calvin Hall.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions usually are available in the University Libraries.
Linguistics/LIBERAL ARTS

11:275 Current Topics in Librarianship 1-3 a.b.
Seminars and analysis of contemporary issues and problems in library and information services.

11:276 Workshop in Library Science 1-3 a.b.
Short-term workshops in library science, with credit for completing a specific project.

12:100 Practicum in Libraries 2-6 a.b.
Students develop library careers with faculty mentorship. Internships require approval of director. Prerequisites: consent of instructor.

12:200 Independent Study 1-6 a.b.
Students develop library careers with faculty mentorship. Internships require approval of director. Prerequisites: consent of instructor.

12:208 Thesis 6 a.b.
Prerequisite: consent of director.

Linguistics

Chair: Nora C. England

Professor: Andreas Kortmann, Robert S. Walker

Associate professors: Gregory N. Carlson, Gregory K. Inman, Catherine G. Rieser

Assistant professor: William D. Day

Degrees offered: B.A., M.A., Ph.D.

Linguistics is the science that studies the organizing principles underlying human language. There are many indicators that such principles exist in language. Children normally learn to use their native language before they enter school, and without much direct instruction. People can speak and understand sentences they have never heard before. All languages have several ways of stating a single meaning and all bear similarities. All languages change through time. Damage to a particular part of the brain may be related to a particular type of linguistic problem, whatever the language. All languages are systems with some unique properties, some universal properties, and some properties shared with other languages that may or may not be historically related.

Linguists do not attempt to learn many languages. Rather, they consider the languages of the world as data to be analyzed by common principles. Linguistics is a science with many laboratories. One linguist's laboratory may consist of a library and pencil and paper. Another may work with acoustical equipment. Others need computers. Some go into seldom-visited places to study, describe, and analyze little-known languages that may be in danger of extinction. Some go into their own communities to study the relationship between language variation and socioeconomic structure, race, or class. Still others, interested in language change, study ancient languages.

Linguistics is not just talk to scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs that are relevant for Chicano, Black, and Native American students. They may help people who make intelligence and achievement tests avoid discrimination against those who are not middle-class while Americans, or they may work with speech clinicians to retrain people with linguistic disabilities.

Undergraduate Program

High scores on verbal, quantitative, and aptitude test indicators are indicative of success in linguistics. Although low aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly and to be able to deal with formal and abstract symbols. Depending on vocational goals, prospective linguistics students should either consider pursuing their graduate studies or major in linguistics with a professional focus or through the doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary, secondary, and special education.

The Bachelor of Arts degree in linguistics prepares the student 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 specializations enable students to tailor the program to their own interests.

The major in linguistics requires 24 semester hours of course work. Majors must take an introductory linguistics course (103:100), courses in phonetics (103:110), phonology (103:111), and syntax (103:112), and a course in language history. The last requirement can be satisfied by taking 103:120 Historical and Comparative Linguistics, or a course in the history of some language or languages family (e.g., 103:122, 103:125, 103:126) or current in some foreign language (e.g., Classical Greek, Latin, French, Old English). Remaining electives are chosen with the undergraduate advisor.

Graduate Programs

Engagement in all graduate programs is on a thesis and research basis. Students interested in 20th-century careers also may take advantage of courses in applied linguistics and other fields either in connection with doctoral work or as an option of the M.A. program.

Master of Arts

All students who take a required set of core courses and must take comprehensive examinations in phonology and syntax or write and defend a thesis. The required core courses are 103:100 Arboretical and Acoustic Phonetics, 103:111 Syntactic Analysis, 103:112 Phonological Analysis and Theory, 103:120 Historical and Comparative Linguistics, 103:123 Syntactic Theory, and 103:133 Linguistic Field Methods or as approved alternative.

Students who write a thesis take at least 6 semester hours of elective courses, exclusive of thesis hours, and receive up to 6 semester hours of thesis work and at least 9 semester hours of thesis work for each course. The focus may be designed in advance by the student (subject to departmental approval) or may be one of a set of designated options (e.g. teaching English as a foreign language).

All electives must be approved by the student's advisor. Students are also required to take a seminar from a departmental list. Students should take at least 30 semester hours of course work and write a thesis, or one of at least 30 semester hours of course work and take the comprehensive examination. All students must have a minimum of 30 semester hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The highly selective 10-30 program provides students with a strong foundation in theoretical linguistics and develops the skills necessary for exploring the close relationship between linguistics and related disciplines. The core requirements for the program include two upper-level syntactic courses (e.g., 103:124 Syntactic Theory and either 103:212 Advanced Syntactic Theory or 103:14 Advanced Syntactic Analysis, two upper-level phonology courses (e.g., 103:122 Phonological Theory and 103:211 Advanced Phonological Theory), and at least two seminars, for a total of 18 semester hours. An approved 18-semester-hour specialty area is also required, and students must achieve a minimum of 36 semester hours, or the equivalent, in foreign languages, as specified by departmental regulations. Comprehensive examinations cover phonological theory, syntactic theory, phonology of language change (historical linguistics and sociolinguistics), and the syntax of a particular area of the dissertation and three years of residence in the department. In addition, all candidates are required to gain supervised experience in teaching and research.

Financial Aid

Teaching assistantships and research assistantships are available to qualified graduate students. Applications for the March 1 for the following academic year. Students applying concurrently for financial aid and admission should submit their Graduate Record Examination (GRE). Application Test scores and three letters of recommendation.
Literature, Science, and the Arts

Chair: Alan F. Nugel

Professor: Carol A. Scharff (English, Classics); David Barlow (Classics); Emma Barlow (Mathematics); Jane Davis (Political Science); James O. Freedman (Law-Political Science); Richard B. Heinz (Music); Julie Hueray (Physics); William H. Meikle (Physics and Astronomy); Howard Reamer (Physics and Astronomy); Martha W. Marshall (English); Alan F. Nugel (English-Latin American Literature); John A. Schuch (German); Derek W. Smith (Philosophy); James B. Underhill (Philosophy)

Associate professors: Judith Alper (German); William D. Bailey (Physics, Pre-Science, Psychology, and Education); Frank S. Dineen (Philosophy); Nancy P. Eppley (Industrial Relations and Human Resources); Henry F. Foster (Biology); Sarah W. Hanley (History); Stephen G. Hastings (Biology)

Degree offered: B.A.

The interdisciplinary Program in Literature, Science, and the Arts (L.S.A.) is designed to provide elective courses for all students. The Bachelor of Arts major is LSA offers a liberal education broader than that permitted by the requirement for a major in a single subject area. It emphasizes skills in writing, analytical thinking, and discussion, while requiring correlation of courses across the discipline of the liberal arts.

Students completing the LSA major may find that it prepares them for graduate study in the humanities, social sciences, or human and social sciences.

LSA courses are open to juniors, seniors, and graduate students from any department or college. Freshman and sophomore students occasionally may be admitted by approval of the instructors.

Courses are conducted by round table discussion in a small group of students with two or more faculty members representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines while focusing on important problems of value assessment in our times. Reading lists are chosen from outstanding works of past and present.

Specific requirements—beyond the general education courses—for the B.A. in Literature, Science, and the Arts are as follows:

• LSA
• Natural sciences 12 s.h.
• Philosophy, religion, history 12 s.h.

Literature beyond General Education

• Fine arts 2 s.h.

Foreign language 3 s.h.

one semester beyond second year (Foreign language courses in 4th year language also may be used to satisfy the requirement in literature.) Students considering an LSA major would consult with the program chair before the end of the sophomore year.

Honors

Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree with honors. To be admitted as a candidate for honors, the student must have the endorsement of the chair of the Interdisciplinary Program in Literature, Science, and the Arts and must fulfill the requirements for the College of Liberal Arts honors Program. An honors student submits an honors project and takes an examination on a personal honors reading list during the semester before graduation.

Courses

203 Introduction to the Liberal Arts 3 s.h.

Dramatic, the secular and some liberal education in modern life and its possible relevance.

321: The Pursuit of Happiness 2 s.h.

Tragedy of individualism in various literary and classical philosophical traditions.

351 Myth and Evanson

investigation between myth and magic in significant patterns in human society and myth. In addition, it is an essay in the study of Plato, Shakespeare, and Homer.

371 The Good Society

Rational society and the meaning of human freedom. In addition, it is an essay in the study of Plato, Shakespeare, and Homer.

381 The Expansions of Bohemia

Political evolution as a process of geographical and institutional change.

391 The Family in Law and Society

Studies the family from a multiple perspective, examining recent trends in social policy, and legal developments and institutions, focusing on law, family, and social regulation.

401 Individuals and Institutions

Fears and developments in individualism and its relations to social, cultural, and institutional phenomena in literature.

402 Values in the Contemporary World

Global economic interaction and forms of cultural development, examined within the general framework of contemporary literary and historical phenomena.

413 Nordic Countries: Science Policy and Values

An investigation of major trends in scientific and political policies. It emphasizes the role of scientific knowledge in the development of human society, and its influence on international and national policies.

423 Human Nature and the Law of Science

Relationship of scientific to humanistic, social, and religious thought. See also 7034.

430 Evolution: Arguments and Myths

Scientific, philosophical, and religious aspects of evolution and its social consequences. Analysis drawing upon evolutionary thought, metaphysics of evolutionists such as...
Division of Mathematical Sciences

Degrees offered: B.A., B.S., M.S., Ph.D.

Undergraduate Programs

Bachelor of Arts

Students must take at least seven additional approved courses from the division beyond one year of calculus (either 22M-25-26 Calculus I-II or 22M-35-36 Engineering Calculus I-II or 22M-45-46 Accelerated Calculus I-II). The courses 22M-27 Introduction to Linear Algebra and 22M-28 Calculus III are strongly recommended.

Each of the seven additional courses must carry at least 3 semester hours of credit. Except for students electing the applied mathematics science option or those seeking a secondary teaching certificate, at least two of the seven courses must be chosen from the following list.

- 22M-116 Operating Systems and Concurrent Programming
- 22M-122 Advanced Computer Organization and Architecture
- 22M-123 Programming Language Foundations
- 22M-125 Data Abstractions, Types, and Structures
- 22M-135 Introduction to Computation Theory
- 22M-145 Artificial Intelligence I
- 22M-152 Design and Analysis of Algorithms I
- 22M-167 Theory of Graphs
- Any mathematics course numbered 22M-160 or above.
- 22M-133 Introduction to Probability
- 22M-145 Introduction to Mathematical Statistics
- 22M-145 Introduction to Discrete Probability Models
- 22M-167 Introduction to Stochastic Processes
- 22M-181 Actuarial Theory I
- 22M-182 Actuarial Theory II

Some of the above courses require extensive prerequisites; the student should consider these in planning his or her program.

Students should consult the divisional office concerning courses that may be applied toward the seven-course requirement. Students who complete the requirements for a secondary teaching certificate may take at any two-level mathematical sciences division courses among their seven required courses in mathematics. See further requirements below under “Mathematics Education.”

Bachelor of Science

In addition to the requirements outlined above for the Bachelor of Arts degree, the Bachelor of Science degree requires two approved courses from the division, each carrying at least 3 semester hours of credit. The programs described below need not be followed exactly; rather, it is expected that the student and his or her advisor will work out a program reflecting the student’s interests. The requirements are flexible enough to accommodate changes in students’ interests.

Suggested Programs

General

Unless a student has a strong interest in a special area in mathematics, a general program is suggested. This type of program should include 22M-16 Introduction to Programming with Pascal, preferably along with calculus during the freshman year. The program also should include a course such as 22M-05 Elements of Group Theory, 22M-35 Fundamental Properties of Spaces and Functions, or 22M-37 Introduction to Set Theory, and it should include at least a semester’s work in probability and statistics.

The student should take additional work, in particular the required 100-level courses, in the area of mathematical sciences that most interests the student. Students contemplating employment in government or industry upon completion of the bachelor’s degree should consider 22M-17 Programming Techniques and Data Structures and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science

The student who plans to enter the actuarial profession should be guided in course selection by the program of education and examinations carried on by the principal actuarial organizations.

Following a sequence in calculus and linear algebra (22M-25-26 Calculus I-II or 22M-45-46 Accelerated Calculus I-II, 22M-27 Introduction to Linear Algebra, and 22M-28), the student should take 22M-152 Introduction to Probability, 22M-145 Introduction to Mathematical Statistics, 22M-167 Actuarial Principles of Life Insurance, 22M-160-162 Actuarial Theory I-II, 22M-177 Numerical Analysis for Actuaries, and a course in operations research.

Additional courses of direct professional interest to actuaries include 22M-181 Demography and Life Table Construction, 22M-183 Risk Theory, and 22M-185 Theory of Pension Funding.

Students are encouraged to take at least one course in computer science and a substantial program of courses from the College of Business Administration. If a student in undeclared to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics

All students interested in applied mathematics should take the sequence 22M-25-26 Calculus I-II or 22M-45-46 Accelerated Calculus I-II, 22M-27 Introduction to Linear Algebra, and 22M-28 Calculus III or the engineering mathematics sequence.


Other general courses that may be of interest are 22M-50 Elements of Group Theory, 22M-61 Functions of One and Several Variables, 22M-100-110 Analysis, 22M-114 Introduction to Analysis II, 22M-126 Elementary Theory of Numbers, and 22M-127 Matrix Theory.

Students in applied mathematics should be familiar with computer programming.
(22C:16) Introduction to Programming with Pascal and 22C:17 Programming Techniques and Data Structures may be taken early along with calculus and with the basic ideas of probability and statistics. The courses 22S:153 Introduction to Probability and 22S:154 Introduction to Mathematical Statistics or 22S:130 Probability and Statistics are appropriate.

To acquire an understanding of how mathematics is used in other areas, students should take a set of courses that involve mathematics in a significant way outside the Division of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 22M:115 Introduction to Analysis I and 22M:116 Introduction to Analysis II.

Mathematics Education

Pure Mathematics

Probability and Statistics

Students also should select one or two courses in computer science from 22C:16 Introduction to Programming with Pascal, 22C:17 Programming Techniques and Data Structures, or 22C:18 Computer Organization and Assembly Language Programming and one or two courses in mathematical analysis from 23M:55 Fundamental Properties of Spaces and Functions, and 23M:100 Classical Analysis I, and 23M:101 Classical Analysis II. Substantial work in one of the biological, social, physical, or engineering sciences also is highly recommended.

Further courses in probability and statistics may be selected from courses in the Department of Statistics and Actuarial Science numbered 100 and above, excluding 22S:101, 22S:102 & 22S:105.


Applied Mathematical Sciences Option
This option is designed to reflect the increasing directions of applications of mathematics and statistics to the social, biological, and physical sciences, and to management, business, ecology, linguistics, and engineering.

The student electing this option must include among the seven courses he or she takes before the last year of calculus:

- 22M:27 Introduction to Linear Algebra;
- At least three courses numbered 22S:180 or above (excluding 22S:180-1 and including at least one course numbered 190 or above); and
- At least three additional quantitative courses from one department outside the division, or, at the adviser's discretion, from two closely related departments.

In addition to the above, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least 2 semester hours of credit.

A student taking this option must include an area of concentration in in one or two programs, and must acquire some experience in the use of the computer.

Students electing this option are assigned specially-designated program advisers.

Transfer Students
Undergraduate transfer students in mathematical must earn at least 9 semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 22C:16 Introduction to Programming with Pascal.

Minor
The minor requires a minimum of 15 semester hours of credit. At least 12 of these semester hours must be earned in upper level course work at The University of Iowa. All students are required to take a year of calculus. The courses designated as upper level for the purposes of satisfying the requirements for a minor in the Division of Mathematical Sciences must be those that have been approved as satisfying the seven course requirement, including the Division of Mathematical Sciences.

Students majoring in computer science or statistical and actuarial science may not use courses in the computer science department to satisfy the minor field requirement. Further information on approved courses may be obtained from the division's offices.

Double Majors
See the divisional offices for information on double majors within the division.

M.B.A. Preparation
An undergraduate student majoring in mathematics who wants to earn a Master of Business Administration in one year of graduate study should consult with his or her adviser and write the associate dean of the College of Business Administration prior to the senior year concerning business courses that should be included in the undergraduate program.

Applied Mathematical Sciences
Chair: Herbert W. HorVitske
Faculty: Kendall E. Atkinson (Mathematics)
Courses

21A-597 Seminar in Applied Mathematical Sciences
21A-598 Reading and Research

Computer Science

Chair: Arthur C. Fleck
Professor: Donald A. Alton, Donald L. Eppley, Arthur C. Fleck
Associate professors: Robert J. Baner, Steven C. Goldsmith.
Assistant professors: Marc Armstrong, Douglas W. A. Aitken, Jeffrey H. Ritter, Roger K. Stoutz
Lecturers: William F. Konen, Steven C. Goldsmith
Degrees offered: B.A., B.S., M.S., Ph.D.

Undergraduate Programs

Pre-Computer Science

Entering students who want to major in computer science majors until they have met the entry requirements of the computer science major. These requirements are based on overall grade-point average and grade-point average in the four required courses listed below (or their equivalents by transfer). A minimum grade of C must be earned in each of the four required courses. The specific grade-point average requirements for a given year are announced in the fall semester (see Computer Science Undergraduate Handbook for details). The requirements are based on assessment of the available educational resources and projected student enrollments; in no case are requirements set higher than 3.0 overall grade-point average and 3.0 grade-point average in the four courses shown below.

21C-16 Introduction to Programming and Pascal

21C-17 Programming Techniques and Data Structures
21C-18 Computer Organization and Assembly Language Programming
21C-25 Calculus I
21C-26 Calculus II
21C-27 Calculus III
21C-28 Linear Algebra
21C-29 Introduction to Linear Algebra
21C-30 Introduction to Programming with Pascal
21C-31 Programming Techniques and Data Structures
21C-32 Computer Organization and Assembly Language Programming
21C-33 Discrete Structures
21C-35 Elementary Numerical Analysis
21C-36 Computer Graphics
21C-37 Introduction to Programming with C

Advanced Placement

The Computer Science Advanced Placement test can be used to gain credit for 21C-16 and/or 21C-17. See the Computer Science Undergraduate Handbook for more details.

Bachelor of Arts

Undergraduate students majoring in computer science need a strong background in mathematics and in programming languages and computer systems. For the B.A. degree, the following computer science core courses are required:

21M-25 Calculus I
21M-26 Calculus II
21M-27 Calculus III
21M-28 Linear Algebra
21M-29 Calculus I
21M-30 Introduction to Linear Algebra
21M-31 Programming with Pascal
21M-32 Programming Techniques and Data Structures
21M-33 Computer Organization and Assembly Language Programming
21M-34 Discrete Structures
21M-35 Elementary Numerical Analysis
21M-36 Computer Graphics
21M-37 Introduction to Programming with C

Bachelor of Science

For the B.S. degree, students must complete the computer science requirements for the B.A. degree plus two additional one semester courses (each having at least 2 semester hours of credit) from the list below. At least one course must be from the Department of Computer Science.

Computer Science courses

21C-31 Computer Graphics
21C-35 Elementary Numerical Analysis
21C-36 Computer Graphics
21C-37 Introduction to Programming with C

21C-38 Fortran in Computer Science
21C-39 Honors in Computer Science (if repeated, credits as only one)
22C:155 Software Engineering
22C:166 Operating Systems and Concurrent Programming
22C:12 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:125 Data Abstractions, Types, and Functions
22C:127 Introduction to Compiler Construction
22C:135 Introduction to Computation Theory
22C:144 Database Management Systems
22C:145 Artificial Intelligence
22C:146 Computer Vision and Robotics
22C:155 Design and Analysis of Algorithms I
22C:158 Digital Logic
22C:18 Computer Communications
22C:196 Individual Programming Projects

Mathematics courses
22M:99 Elements of Group Theory
22M:101 Fundamental Properties of Spaces and Functions
22M:102 Elements of Geometry

Any 100-level course except 22M:107

Statistics courses
22S:99 Probability and Statistics for the Engineering and Physical Sciences
22S:100 Probability and Statistics I
22S:153 Introduction to Probability

Any course numbered above 22S:153

These courses *cannot* be taken pass/fail.

Candidates with certain special elective programs may petition for additional courses to be accepted for this requirement.

Honors
Any University of Iowa student with a cumulative grade-point average of 3.5 or better may join the College of Liberal Arts and Sciences Honors Program. Interested students should contact the Honors Program office in the Searls House Honors Center. To graduate with honors, students must complete between 4 and 6 semester hours of 22C-Honors in Computer Science and submit acceptable honors thesis. To take 22C:196, students must have the consent of a computer science faculty member. The faculty member must know the nature of the intended project for the honors thesis, a plan or timetable for the work, and the nature of the thesis itself. Students are responsible for finding a faculty member willing to supervise their honors project.

See the Computer Science Undergraduate Handbook for more details.

Electives
For the B.A. or B.S. degree, students must take 11 to 20 semester hours of electives in a field with potential computing application, such as business, engineering, physics, or other field in which students plan to apply the computer science degree. These courses must be approved by the student's computer science advisor beforehand and cannot be taken pass/fail. They also may be used to satisfy the college electives requirement.

Minor
To earn a minor in computer science, a student must complete a minimum of 15 semester hours, 12 of which must be taken in advanced University of Iowa course work. Students must complete 22C:116 Introduction to Programming with Pascal, 22C:117 Programming Techniques and Data Structures, 22C:118 Computer Organization and Assembly Language Programming, and two more courses from among 22C:95 Programming with O'Riordan and/or any computer science courses numbered higher than 22C:18, except those numbered 22C:100 to 22C:105. For purposes of the minor only, the courses listed here, other than 22C:18, are considered upper-level.

These courses may be taken pass/fail, but engineering majors may not use these courses toward the requirements for the minor in computer science.

Graduate Programs

Master of Science

Candidates for the M.S. degree in computer science must have completed the following courses or acquired equivalent proficiency:

- 22C:116 Operating Systems and Concurrent Programming (3 s.h.)
- 22C:122 Advanced Computer Organization and Architecture (3 s.h.)
- 22C:123 Programming Language Foundations (3 s.h.)
- 22C:135 Introduction to Computation Theory (3 s.h.)
- A 22C:117 22C:122 22C:123 course (3 s.h.)

Three additional graduate level 22C courses (9 s.h.)

Approved courses outside of computer science (6 s.h.)

Total (20 s.h.)

Outside courses must be selected to support the student's career objectives and must be approved by the student's advisor. The courses must broaden a student's background within study at a new area or extend student's earlier work outside of computer science.

Computer science courses should be selected according to the student's special area interests but also should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included.

M.S. candidates may elect to write a thesis, and with their advisor's consent they may apply up to 8 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S. degree.

The M.S. final examination consists of either an oral defense of the thesis or a written examination that assumes completion of 22C:116 Operating Systems and Concurrent Programming, 22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Language Foundations, and 22C:135 Introduction to Computation Theory. The written examination attempts to confront the student with the major topics as well as the major topics in the individual courses. Students should consult the Computer Science Graduate Handbook for further information.

Applicants for admission to the M.S. program in computer science usually are required to have background equivalent to a B.A. or B.S. in computer science. In special cases, a student lacking one or more of the undergraduate requirements may be admitted to the graduate program. In such cases the student is required to complete these courses prior to admission to graduate courses.

Doctor of Philosophy

Doctoral students are expected to complete 80 to 90 semester hours of graduate work, including a thesis. The student must have a master's degree when beginning the Ph.D. program, and need not acquire one. Course requirements or equivalent proficiency for the doctorate include:

- 22C:116 Operating Systems and Concurrent Programming (3 s.h.)
- 22C:122 Advanced Computer Organization and Architecture (3 s.h.)
- 22C:123 Programming Language Foundations (3 s.h.)
- 22C:125 Data Abstractions, Types, and Functions (3 s.h.)
- 22C:135 Introduction to Computation Theory (3 s.h.)
- 22C:144 Database Management Systems (3 s.h.)
- 22C:145 Artificial Intelligence I (3 s.h.)
- 22C:151 Design and Analysis of Algorithms (3 s.h.)

Students also must complete at least 18 semester hours of 225-level computer science course work in addition to 22C:299 Research Dissertation.

In addition to the course work in computer science, students must complete at least three years of grades of A or B, in one of these three areas: Algebra, Analysis, Logic and set theory.

Operations research

Statistics and probability

Numerical analysis

At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

After students pass the qualifying examination, they select a faculty adviser to direct their research. Students and their advisers select the dissertation committee.

In consultation with the adviser and dissertation committee, an adviser prepares a plan of study and specifications for a
specifications, data abstraction facilities in modular programming languages, exceptions and associated recovery mechanisms, grades of C or higher and CS 3030.

2C310 Introduction to Compiler Construction 3 b.h.
Compiler design: analysis of source and target languages; lexical analysis; tokenizer; syntax directed translation and symbol table construction; abstract syntax trees; specification and implementation, automatic assembler generation, special purpose compilers for linkers, loaders, run-time and operand processor, Fortran, C, and Fortran compilers, run-time support, and compiler validation. Grades of C or higher and CS 3030.

2C330 Introduction to Computer Theory 3 b.h.
Formal languages, regular and nonregular, context free grammars and their properties, finite automata, push-down, linear bounded and Turing acceptors, relationships between formal grammars and automata complexity. Grades of C or higher and CS 3030. Pass/Fail option.

2C345 Database Management Systems 3 b.h.
Database management systems architecture and models, entity-relationship model, merge-descriptions, access methods, transaction control and recovery, security, performance issues, transaction methods, and concurrency control. Grades of C or higher.

2C346 Computer Vision and Robotics 3 b.h.
Pattern recognition, scene analysis, motion analysis, and computer vision. Learning and planning systems, image formation, feature extraction, recognition using computer vision, and robotics. Grades of C or higher.

2C353 Design and Analysis of Algorithms 3 b.h.
Algorithm design and analysis techniques, recurrence relations, divide-and-conquer, the greedy approach, dynamic programming, randomized algorithms, and NP-completeness. Grades of C or higher and CS 3030.

2C356 Theory of Graphs 3 b.h.
Graph theory including labels, colorings, trees, Hamiltonian graphs, and planar graphs. Grades of C or higher and CS 3030.

2C378 Computer Communications 3 b.h.
Computer networks: network models, physical networks, link layer, upper layer, errors and error control mechanisms, network protocols, security, reliability, and performance. Grades of C or higher.

2C395 Theory of Foundations for Computer Science 3 b.h.
Formal logical systems, computability, recursive functions, and reducibility of problems. Grades of C or higher and CS 3030.

2C399 Topics in Computer Science 3 b.h.
Special topics of interest to the faculty and students. Grades of C or higher.

2C399 Individual Programming Projects 3 b.h.
Supervision by faculty, arranged with individual students. May be repeated a maximum of three times.

2C350 Research for Graduates 3 b.h.
For PhD candidates in computer science. Prerequisite: consent of advisor.

Mathematics

2C328 Advanced Operating Systems 3 b.h.
Process control, scheduling and synchronization, memory management, file systems, virtual memory concepts and principal security, networking protocol stacks, and high level computer language. Grades of C or higher and CS 3030.

2C329 Research for Graduates 3 b.h.
For PhD candidates in computer science. Prerequisite: consent of advisor.

Graduate Programs

Master of Science

There are four programs leading to an M.S. degree in mathematics. The course requirements for all programs may be modified with the consent of the student's advisory committee. Each student must change the areas covered by the comprehensive examinations will be considered by the graduate committee. Each mathematics graduate student is expected to gain experience at the University, and the oral comprehensive examination in this requirement is fulfilled by the research training seminar or teaching assistant work.

Program I

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. Students must take a two-semester sequence in analysis, either 22M-115-116 or 22M-203-204; a course in topology, 22M-112; and a two-semester sequence in abstract algebra, either 22M-120-121 or 22M-226-227. The student must also complete an examination, one on the analysis and topology sequence and the other on the algebra sequence. The program requires a minimum of 30 semester hours of graduate credit.

Program II

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. Students must take a two-semester sequence in analysis, either 22M-115-116 or 22M-203-204; a course in topology, 22M-112; and a two-semester sequence in abstract algebra, either 22M-120-121 or 22M-226-227. The student must complete an examination, one on the analysis and topology sequence and the other on the algebra sequence. The program requires a minimum of 30 semester hours of graduate credit.

Program III

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. Students must take a two-semester sequence in analysis, either 22M-115-116 or 22M-203-204; a course in topology, 22M-112; and a two-semester sequence in abstract algebra, either 22M-120-121 or 22M-226-227. The student must complete an examination, one on the analysis and topology sequence and the other on the algebra sequence. The program requires a minimum of 30 semester hours of graduate credit.
203-30 Calculus for the Biological Sciences 3.0 credits
Differential and Integral Calculus, topics in Calculus with applications to life sciences. Prerequisite: Math 202 or one year of high school calculus, or permission of instructor. Credit 202 and 30 cannot both be applied toward graduation.

203-11 Quantitative Methods 4.0 credits
Cover the essentials of descriptive and inferential statistics, and basic concepts of mathematics that are important in the sciences. Prerequisite: 202 or 30 or permission of instructor. Credit 203 and 11 cannot both be applied toward graduation.

203-10 Elementary Functions 4.0 credits
Functions, relations, coordinate systems, properties and graphs of algebraic, exponential, logarithmic, and trigonometric functions. Prerequisite: 30. Credit 202 or 203 and 10 cannot both be applied toward graduation.

203-20 Calculus I 4.0 credits
Together with 203-30 and 203-50, contains the basic concepts, methods, and techniques of single variable differential and integral calculus. Topics include differentiation, integrals, area, introduction to partial derivatives, and series. Prerequisite: 203-10 or permission of instructor. Credit 203-20 and 203 cannot both be applied toward graduation. Prerequisite: Two years of high school algebra and one year of high school geometry, or permission of instructor.

203-30 Calculus II 4.0 credits
Continues 203-20. Credit 203-30 and 203-50 cannot both be applied toward graduation. Prerequisite: 203-20 or permission of instructor. Credit 203-30 and 203 cannot both be applied toward graduation.

203-17 Introduction to Linear Algebra 4.0 credits
The algebra of vectors and matrices, vector spaces, linear dependence and independence, systems of linear equations, matrices and determinants, linear transformations, eigenvalues and eigenvectors, orthogonality and least squares, diagonalization, and applications to linear programming. Prerequisite: 203-20 or permission of instructor. Credit 203-17 and 203 cannot both be applied toward graduation.

203-20 Calculus III 4.0 credits
Multivariable calculus, vector functions, line integrals, double and triple integrals, change of variable, vector fields, vector calculus, surfaces, and line integrals. Prerequisite: Math 203-20 or permission of instructor.

203-40 Computer Lab for Calculus I 1.0 credit
A computer laboratory course covering the concepts and techniques of calculus and linear algebra using computer software. Prerequisites: Math 203-20 or permission of instructor.

203-50 Computer Lab for Calculus II 1.0 credit
Use of the computer as an aid to understanding the concepts and techniques of calculus and linear algebra not covered in the computer laboratory courses. Prerequisites: Math 203-20 or permission of instructor.

203-35 Engineering Calculus I 4.0 credits
One-semester introduction to the use of calculus in engineering. Differs from Math 203-20 and 203-30 in emphasis on physical applications, in the use of enrichment modules, in the use of technology, and in the use of a computer algebra system. Prerequisites: Math 203-10 or permission of instructor.

203-45 Engineering Calculus II 4.0 credits
Further applications of differential and integral calculus to the solution of engineering problems. Prerequisites: Math 203-20 or permission of instructor.

203-38 Vector Calculus 3.0 credits
Vector calculus topics in engineering problems, revision of vector algebra and calculus, use of vector fields to represent physical quantities, Taylor's formula, max. and min., saddle points, conditions for max., and min., and various vector fields. Prerequisite: Math 203-45 or permission of instructor.

203-39 Differential Equations for Engineers 4.0 credits

203-40 Matrix Algebra for Engineers 4.0 credits
Operations except for optional minor projects. 

203-43 Calculus for Business, Science, and Engineering 4.0 credits
Differential and integral calculus, topics in matrix algebra and their solutions by reduction, determinants, matrix products, eigenvalues, and eigenvectors. applications to various fields, including economics, biological sciences, and engineering. Prerequisite: Math 105 or permission of instructor.

203-45 Accelerated Calculus I 4.0 credits
Differential and integral calculus starting at the beginning level for students who have studied calculus in high school. Preparation and ability to use a place of Math 203-20 is required. Involves remedial work, but students should consider concurrent enrollment in Math 203-20. Prerequisite: ACT math score above 21 or experience of high school calculus placement test score above 25.

203-46 Accelerated Calculus II 4.0 credits
Second semester differential and integral calculus for exceptional students. Continuation of Math 203-45 or 203-20, equivalent for exceptional students to concurrent enrollment in Math 204-30 or Math 204-40. Prerequisite: Math 203-45 or permission of instructor.

Elementary Topics of General Interest

These courses are not open to graduate students or those not in the department.

204-10 Elements of Group Theory 3.0 credits
Basic notions, subgroups, homomorphisms, isomorphisms, special subgroups (normal, cyclic) and quotient groups.

204-20 Fundamental Properties of Spaces 3.0 credits
Elementary topological and analytic properties of Euclidean spaces and Banach spaces. Emphasis is on the ability to handle rudimentary theorems, and proofs.

204-60 Foundations of Geometry 3.0 credits
Introduction to modern axiomatic and constructive foundations of geometry. Prerequisite: Math 204-30 or permission of instructor.

204-71 Elementary Numerical Analysis 3.0 credits
Introduction to numerical analysis, including finite difference methods, interpolation, numerical integration, and numerical methods for differential equations. Prerequisites: Math 204-20 or permission of instructor.

204-80 Theory of Arithmetic 3.0 credits
Topics related to the theory of numbers, including number theory, number systems, and number theory special and general. Prerequisites: Math 204-20 or permission of instructor.

204-85 Geometry for General Teachers 3.0 credits
A study of geometric, topological, and differential geometry and related concepts, with emphasis on activities in teaching and solving real-world problems. Open only to elementary teaching certificate candidates or certified elementary teachers. Offered spring semester, permission 204-85 or equivalent.

Undergraduate: Upper Division

205-10 Introduction to Differential Equations 3.0 credits

205-15 Introduction to Linear Theory 4.0 credits
Matrices, linear transformations, determinants, linear spaces, characteristic values, and vectors. Applications may be selected. Prerequisite: Math 203-30 or permission of instructor. Credit 205-15 and 205 cannot both be applied toward graduation.

205-20 History of Mathematics 3.0 credits
Special topics in the history and development of mathematics. Not for graduate math credit, except Program II (Secondary Education). Prerequisite: Math 205-20 or consent of instructor.

205-21 Introduction to Number Theory 3.0 credits
Historical and logical development of certain properties of integers. Elementary number theory, applications may be selected. Not for graduate math credit, except Program II (Secondary Education). Prerequisite: Math 205-20 or consent of instructor.

205-100 Classical Analysis I 3.0 credits
Multivariable calculus and vector fields. Theorems of Green, Gauss, and Stokes. Prerequisite: Math 205-10 or consent of instructor.

205-110 Classical Analysis II 3.0 credits
Further topics in classical analysis. Prerequisite: Math 205-10 or consent of instructor.

205-120 Probability Theory 3.0 credits
Basic concepts of probability. Random variables, probability distributions, and the law of large numbers. Prerequisite: Math 205-10 or consent of instructor.

205-121 Introduction to Analysis 3.0 credits
Sets and functions, sequences and series of real numbers. Not for graduate math credit, except Program II (Secondary Education). Prerequisite: Math 205-10 or consent of instructor.

205-122 Introduction to Analysis 3.0 credits
Further topics in analysis. Prerequisite: Math 205-10 or consent of instructor.

205-125 Introduction to Analysis 3.0 credits
Further topics in analysis. Prerequisite: Math 205-10 or consent of instructor.

205-126 Complex Variables 3.0 credits
Introduction to complex variables. Functions of a complex variable, line integrals, Cauchy-Laurent theorem and applications, Cauchy's integral formula and theorem, Taylor series, Laurent series, conformal mapping. Prerequisite: Math 205-10 or consent of instructor.

205-127 Complex Variables Applications 3.0 credits
Complex mapping and integral representations (Fourier, Laplace, Mellin, Hankel, and transforms with applications to various fields). Prerequisite: Math 205-11 or consent of instructor.

205-130 Abstract Algebra I 3.0 credits
A study of groups, rings, and fields. Applications to geometry, number theory, and cryptography. Prerequisite: Math 205-10 or equivalent.

205-131 Abstract Algebra II 3.0 credits
Continuation of Math 205-130. Prerequisite: Math 205-130.

205-132 Foundations of Set Theory 3.0 credits
A study of set theory, relationship to mathematical reality, informal versus axiomatic approaches. Prerequisite: Math 205-10 or permission of instructor.

205-133 Foundations of Set Theory 3.0 credits
A study of set theory and its relationship to mathematical reality. Prerequisite: Math 205-10 or permission of instructor.

205-134 Vector Spaces I 3.0 credits
Construction of Math 205-134.

205-135 Vector Spaces Applications 3.0 credits
Construction of Math 205-135.
Statistics and Actuarial Science

Class: J. Seidell
Professor: Richard L. Dykstra, Robert V. Hogg, Tim Johnson, S. Iwakura

Prerequisites:
- MATH 201 or MATH 203
- MATH 206

Courses:

**22M.230 Topics in Algebra**
- 3 s.h.
- Selected topics, including algebraic number theory, groups, group representations, rings, ideals, linear theory, lattice theory, modules. Prerequisite: 22M.286 or consent of instructor.

**22M.235 Topics in Real Theory**
- 3 s.h.
- Selected topics in the theory of constructive and/or nonconstructive foundations for geometry, topology, measure theory, and probability. Prerequisite: 22M.286 or consent of instructor.

**22M.240 Numerical Analysis**
- 3 s.h.
- Study of linear algebra, numerical methods, interpolation, quadrature, summation of series, convergence of sequences, or other topics. Prerequisite: 22M.286 or equivalent.

**22M.293 Theory of Probability I**
- 3 s.h.
- Basic concepts, distribution functions, functions of random variables, the central limit theorem, discrepancy and limit theorems. Prerequisite: 22M.286. Same as 22M.294.

**22M.271 Topics in Mathematical Analysis**
- 3 s.h.
- Selected advanced topics in mathematical analysis. Prerequisite: 22M.151-152 or consent of instructor.

**22M.272 Seminar: Algebra**
- 3 s.h.
- Seminar-style course on advanced topics in algebra.

**22M.301 Seminar: Logic and Foundations of Mathematics**
- 3 s.h.
- Seminar-style course on advanced topics in logic and foundations of mathematics.

**22M.292 Seminar: Analysis**
- 3 s.h.
- Seminar-style course on advanced topics in analysis.

**22M.295 Seminar: Functional Analysis**
- 3 s.h.
- Seminar-style course on advanced topics in functional analysis.

**22M.297 Seminar: Partial Differential Equations**
- 3 s.h.
- Seminar-style course on advanced topics in partial differential equations.

**22M.298 Seminar: Numerical Analysis**
- 3 s.h.
- Seminar-style course on advanced topics in numerical analysis.

**22M.299 Research: Research**
- 3 s.h.
- Seminar-style course on advanced topics.

**Statistics and Actuarial Science**

- 56-170 Deterministic Operations Research
- 06-173 Stochastic Operations Research
- 22M.235 Introduction to Probability
- 22M.45 Accelerated Calculus I
- 10-78 Rhetoric

**Freshman: Fall**
- 22M.235 Calculus I
- 22M.35 Engineering Calculus I
- 22M.45 Accelerated Calculus I

**Freshman: Spring**
- 22M.26 Calculus II
- 22M.36 Engineering Calculus II
- 22M.46 Accelerated Calculus II

**Sophomore: Fall**
- 22M.27 Introduction to Linear Algebra
- 60-1 Principles of Microeconomics

**Sophomore: Spring**
- 22M.26 Calculus III
- 80-2 Principles of Macroeconomics
- 22M.7 Introduction to Computing with FORTRAN

**Junior: Fall**
- 22M.153 Introduction to Probability
- 22M.180 Actuarial Theory I

**Junior: Spring**
- 22M.154 Introduction to Mathematical Statistics
- 22M.125 Actuarial Principles of Life Insurance

**Senior: Fall**
- 22M.181 Actuarial Theory II
- 22M.200 Method of Statistical Inference

**Senior: Spring**
- 22M.182 Actuarial Theory III
- 22M.183 Demography and Life Table Construction

**Senior: Theory of Pension Funding**

**Applied Statistics**

This program is designed to prepare students for careers in applied statistics or for graduate study in applied statistics or another discipline that incorporates statistical tools. The required courses in the program are:
Graduate Programs

Master of Science

Each M.S. candidate has a committee of four members, which is responsible for recommending action on the candidate's degree. For thesis programs, the committee's recommendation usually is based on two written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation usually is based on an oral defense of the thesis, although it may be based on a single written examination over the topics covered in the candidate's program of study.

Students who choose to earn the M.S. degree with thesis may earn up to 6 semester hours of credit for thesis preparation. Specific course requirements for the M.S. programs are given below. The minimum grade point average required for each of these programs is 2.75.

Actuarial Science With or Without Thesis

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:154 Methods of Statistical Inference
225:180-182 Actuarial Theory I-III
226:177 Numerical Analysis for Actuaries
At least three courses from:
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:185 Theory of Pension Funding
An approved course in operations research
Students who have had the equivalent of 225:152-154 at another institution may waive the requirement only if they have passed part two of the Examination of the Society of Actuaries.

Theoretical Statistics and Probability With or Without Thesis

225:115 Introduction to Analysis I
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:267 Introduction to Stochastic Processes
225:267 Theory of Probability I
At least two of these:
225:94 Introduction to Discrete Probability Models
225:171 Topics in Statistics
225:292 Theory of Statistics I
225:293 Introduction to the Theory of Nonparametric Statistics
225:295-296 Advanced Inference I-II
225:299 Linear Models
225:268 Multivariate Analysis
225:264-265 Theory of Probability I-II

Applied Statistics Without Thesis

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:158 Analysis and Design of Experiments I
225:159 Regression Analysis
225:173 Data Analysis

At least two of the following:
225:156 Applied Time Series Analysis
225:155 Application of Multivariate Statistical Techniques
225:198 Analysis and Design of Experiments II

The remainder of the program consists of at least two additional courses numbered 225:135 or above, and other courses approved by the advisor. With the advisor's approval, courses in other fields related to the thesis may be substituted.

Experience in a computer language such as FORTRAN is required. If students satisfy the requirements by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The typical thesis is a statistical presentation of the results of a meaningful research project in a specific field, or a study of the characteristics of a new statistical method. It generally requires 6 semester
Doctor of Philosophy

To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete:

225:301 Analysis II
225:302 Regression Analysis
225:318 Analysis and Design of Experiments I
225:347 Introduction to Stochastic Processes
225:372 Data Analysis
225:381-382 Theory of Statistics I-II
225:395 Advanced Regression
225:396 Linear Models
225:394 Theory of Probability I

At least 3 semester hours of any combination of the following:

225:291 Seminar Mathematical Statistics
225:292 Seminar Probability
225:295 Seminar Applied Statistics

At least one of the following:

225:156 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:165 Analysis and Design of Experiments II

At least one of the following:

225:220 Analysis of Categorical Data
225:220 Introduction to the Theory of Nonparametric Statistics

And at least two of the following:

225:225 Advanced Inference II
225:228 Theory of Probability II

Students must achieve at least a 3.5 grade-point average on the courses chosen to satisfy the above requirements.

Well-prepared students entering with a B.S. degree require three years of course work to complete the doctoral program; they take 225:201, 225:202, 225:203, and 225:204 in the first year. Less well-prepared students need to take 225:205, 225:210, 225:211, and 225:116 in the first year, adding an extra year to the program. Examples of complete programs are available from the department.

In addition to the above requirements, for each semester graduate students are registered for 6 or more semester hours, their registration must include at least one course of at least 2 semester hours offered by the Department of Statistics and Actuarial Science, other than 225:191 Individual Study, 225:195 Readings in Statistics and/or Actuarial Science, or 225:199 Directed Research.

During the graduate programs, students may take course work or seminars in other departments to achieve certain auxiliary goals of the doctoral degree in statistics to relate an area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.

Students are required to include in their programs a component that involves experience in either teaching or statistical consulting.

Students who expect to require financial assistance for their third year should take the qualifying examination no later than the spring semester of their second year.

The qualifying examination covers introductory probability, mathematical statistics, and regression analysis. These topics generally are covered in 225:153, 225:154, 225:152, 225:201. Study guides are available from the department. Students who are unsuccessful in their first attempt may repeat the qualifying examination at any time.

Students take a comprehensive examination after completing most of the course work in their approved plan of study, typically during the third year.

The comprehensive examination consists of a written core examination on statistical inference, linear models, and probability. These topics are generally covered in 225:202, 225:205, and 225:204. This is followed by an individual examination on a topic selected by the candidate and his or her committee. The purpose of the individual examination is to permit the student to demonstrate an area of strength; the format is at the discretion of the student's committee. Study guides for the comprehensive examinations are available from the department.

Students must achieve at least a 3.4 grade-point average on completed courses in the plan of study.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chair.

Special Features

Because statisticians often are trained with other scientists in research projects, it is important that students gain experience in group efforts. The department tries to provide this experience in several courses.

In addition, the department houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in these research endeavors, graduate students in other departments, the center also seeks involvement in larger research projects and proposal writing.
235:14 Design Analysis of Experiments in Biomedical Sciences
Prerequisites: 43:111, Same as 43:102.

235:148 Intermediate Statistical Methods
Prerequisites: 235:148 or equivalent. Same as 234-243.

235:150 Methods of Statistical Inference
Regression analysis, analysis of variance, time series analysis; use of statistical computing packages. Prerequisites: 235:148 or equivalent. Same as 317:151.

235:152 Regression Analysis
Analysis of multiple linear regression models, model checking, model assessment, variable selection, dummy variables; regression diagnostics; use of computer packages. Prerequisites: 235:149 or equivalent. Same as 317:152.

235:153 Introduction to Probability
Introduction to theory and application of probability models, including elementary combinatorics, random variables, probability distribution, independence, distribution functions, conditional probability, generating functions, limit theorems. Prerequisites: 234:146 or equivalent.

235:155 Introduction to Multivariate
Statistika
Bivariate distribution theory, point and interval estimation, bivariate normal distribution, least squares regression, including multiple linear regression. Prerequisites: 235:151 or 235:210 and consent of instructor; mathematics majors or science majors.

235:158 Applied Time Series Analysis
General stationary and nonstationary models; autoregression and autoregressive integrated moving average models; identification, estimation, and forecasting; seasonal adjustment; correlation and causation; cross-spectral density. Prerequisites: 235:154 or equivalent. Offered spring semesters. Prerequisites: 235:152 and 235:155 or equivalent.

235:157 Correlation and Regression
Prerequisites: 235:148 or equivalent. Same as 317:154.

235:158 Analysis and Design of
Experiments
Single and multiple factor experiments; fixed and random effects; analysis of variance; factorial and fractional factorial designs; analysis of covariance; point and interval estimation; use of computer packages. Offered spring semester. Prerequisites: 235:152 and 235:155 or equivalent. Offered fall semester.

235:159 Design of Experiments
4 credits

235:200 Applied Statistical Decision Theory
Comparison of decision rules including Bayes and minimax rules; utility and risk functions; decision under uncertainty; stochastic dominance; decision making under partial knowledge; decision analysis selected applications. Prerequisites: 235:152 and 235:155 or equivalent.

235:201 Application of Multivariate Statistical
Analysis
MANOVA, discriminant analysis, factor analysis, principal component analysis, cluster analysis, sampling distributions, use of computer packages; additional computer package. Offered fall semesters. Prerequisites: 235:152 and 235:154 or equivalent. Same as 317:201.

235:203 Categorical and Multivariate Statistical Methods
Scales of measurement; multiple regression and models; sampling distributions for multiple comparisons; chi-squared analysis; categorical data analysis, use of computer packages; additional computer package. Offered fall semesters. Prerequisites: 235:152 and 235:154 or equivalent. Same as 317:203.

235:404 Introduction to Elecronic Probability
Modeling
Basic probability theory; random variables; conditional probability; probability generating functions; discrete and continuous distributions; stochastic processes and applications. Prerequisites: 235:152 or 235:153 or equivalent.

235:417 Introduction to Stochastic Processes
Theory and application of Markov processes; Markov chains, renewal theory, and continuous-time Markov chains. Offered spring semesters. Prerequisites: 235:152 or 235:144.

235:418 Analysis and Design of
Experiments in Biomedical Sciences
Prerequisites: 43:111, Same as 43:102.

235:419 Intermediate Statistical Methods
Prerequisites: 235:148 or equivalent. Same as 314-243.

235:420 Methods of Statistical Inference
Regression analysis, analysis of variance, time series analysis; use of statistical computing packages. Prerequisites: 235:149 or equivalent. Same as 317:152.

235:423 Introduction to Probability
Introduction to theory and application of probability models, including elementary combinatorics, random variables, probability distribution, independence, distribution functions, conditional probability, generating functions, limit theorems. Prerequisites: 234:146 or equivalent.

235:425 Introduction to Multivariate
Statistika
Bivariate distribution theory, point and interval estimation, bivariate normal distribution, least squares regression, including multiple linear regression. Prerequisites: 235:151 or 235:210 and consent of instructor; mathematics majors or science majors.

235:426 Applied Time Series Analysis
General stationary and nonstationary models; autoregression and autoregressive integrated moving average models; identification, estimation, and forecasting; seasonal adjustment; correlation and causation; cross-spectral density. Prerequisites: 235:154 or equivalent. Offered spring semesters. Prerequisites: 235:152 and 235:155 or equivalent.

235:427 Correlation and Regression
Prerequisites: 235:148 or equivalent. Same as 317:154.

235:428 Analysis and Design of
Experiments
4 credits

235:429 Introduction to Elecronic Probability
Modeling
Basic probability theory; random variables; conditional probability; probability generating functions; discrete and continuous distributions; stochastic processes and applications. Prerequisites: 235:152 or 235:153 or equivalent.

235:437 Introduction to Stochastic Processes
Theory and application of Markov processes; Markov chains, renewal theory, and continuous-time Markov chains. Offered spring semesters. Prerequisites: 235:152 or 235:144.

235:438 Analysis of Categorical Data
An introduction to log-linear models as a basis for study of categorical data; includes models for discrete data; distribution theory; maximum likelihood estimation; weighted least square estimates for quasi-log-linear models; Rao's score and Wald tests; likelihood ratio tests. Prerequisites: 235:158 or 235:212 or equivalent.

235:439 Theory in Statistics
Prerequisites: consent of instructor. Same as 315:439.

235:440 Regression Statistics II
Prerequisites: 235:148 or equivalent. Same as 317:440.

235:443 Advanced Inference I

235:444 Advanced Inference II

235:445 Advanced Inference III
Multivariate distribution theory including multivariate normal, distribution and distribution of quadratic forms, full rank and non full rank linear models, matrix algebra, multivariate exponential, mixture of normal and mixture of distributions. Prerequisites: 235:228 and 235:234.

235:450 Multivariate Analysis
Multivariate distribution theory; including Multivariate normal, multivariate t- and chi-square distributions, multivariate general linear model, MANOVA, discriminant analysis, canonical correlation, principal components, factor analysis, singular value decomposition.

235:451 Theory of Probability I

235:452 Theory of Probability II
Principles of limiting behavior; weak convergence; convergence in probability and in distribution; weak convergence; convergence of measures; renewal processes, and Markov chains; Prerequisites: 235:228 and 235:234.

235:472 Topics in Theory of Probability and
Statistics
Selected topics in theoretical statistics of the instructor's choice. Prerequisites: consent of instructor.

235:473 Advanced Mathematical Statistics
Prerequisites: 235:472 or equivalent. Consent of instructor.

235:477 Seminar: Mathematical Statistics
Prerequisite: consent of instructor.

235:483 Probability
Prerequisites: 235:228 and 235:234. Consent of instructor.

235:486 Applied Statistics
Prerequisites: 235:477 or equivalent. Consent of instructor.

235:493 Directed Study
Prerequisite: consent of instructor.

235:499 Reading Research
Prerequisite: consent of instructor.

Medical Technology
See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.
Microbiology

Degree: B.S., M.S., Ph.D.

Microbiology is the branch of biology dealing with the smallest living things: bacteria, fungi, algae, protozoa, and viruses. It is closely related to immunology in 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 recent biochemical research employs microbiological and immunological methods.

Some research areas in which both practical and theoretical advances are occurring include: the study and evolution of microbial species pathogenic to animals, plants, and man; the use of 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; and the genetics and regulation of the immune response, including selection and culture of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an understanding of the living world of biology. For the graduate with a bachelor’s degree in microbiology, positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue beyond the bachelor’s degree have career opportunities in these same areas, plus additional work in teaching, with greater responsibilities and correspondingly higher salaries.

Undergraduate Program

Bachelor of Science

An undergraduate student majoring in microbiology at The University of Iowa must meet General Education Requirements of the College of Liberal Arts. Students who become microbiology majors before the completion of these requirements must complete a minimum of 14 semester hours of microbiology to obtain a B.S. degree. Students who became microbiology majors after spring 1984 must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. In both cases, no more than 2 semester hours of 6000 or 6100, or 6171, and 1 semester hour of 6183 Seminar in Microbiology may count toward this requirement.

Students who wish to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biology, 30 semester hours of which must be in microbiology.

Certification is required for employment or advancement in some areas (primarily in diagnostic microbiology).

Students are permitted to take microbiology courses more advanced than 6157 General Microbiology only if they receive a "C" or above in 6157.

Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades.

Required courses other than microbiology courses for students who became microbiology majors prior to summer 1984 include the following:

- 413 Principles of Chemistry I 3 s.h.
- 414 Principles of Chemistry II 3 s.h.
- 416 Principles of Chemistry Lab 1 2 s.h.
- 101 Elementary Quantitative Analysis 4 s.h.
- 121 Organic Chemistry I 3 s.h.
- 122 Organic Chemistry II 3 s.h.
- 141 Organic Chemistry Laboratory 3 s.h.
- 192 The Chemistry of Biological Material 3 s.h.
- 193 Metabolism 3 s.h.

- 221M Mathematics for the Biological Sciences or 221M19 Elementary Functions 4 s.h.
- 221-12 College Physics 8 s.h.
- 373 Principles of Animal Biology 5 s.h.

The course requirements for students who became microbiology majors after spring 1984 are the same as above, except that one semester of calculus (221M16, 221M25, or 221M35) must be taken rather than 221M15 or 221M25.

Courses that are recommended include the following:

- 8W10 Expository Writing 3 s.h.
- 8W112 Writing for the Sciences 3 s.h.
- 22217 Bioinformatics Computing with FORTRAN 3 s.h.
- 22216 Introduction to Programming with Pascal 4 s.h.
- 22217 Programming Techniques and Data Structures 3 s.h.

Honors

The honors program is open to juniors and seniors with a grade-point average of at least 3.2 overall and 3.2 in microbiology courses. The honors program in microbiology requires 25 semester hours of course work in microbiology, including 6 semester hours in 6157-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research the student presents a written report. A student successfully completing these requirements receives the B.S. degree with honors.

Graduate Programs, Faculty Roster, Courses

See "Microbiology" in the "College of Medicine" section of the Catalog

Military Science (Army ROTC)

Head: Lieutenant Colonel Roger W. Lawson
Professor: Roger W. Lawson (Lieutenant Colonel, U.S. Army, Ret.)
Assistant professors: Edwin A. Anderson (Major), Wayne J. Comer (Major), Michael J. Hall (Captain), Wesley C. Carpenter (Major)
Instructors: William A. Bailey (Major), Richard A. Chacon (SGM)

The Department of Military Science is the academic unit that trains Reserve Officers Training Corps (ROTC) members. Participation in the program is voluntary. Courses in the program carry credit applicable toward a degree.

The ROTC Basic Course for freshmen and sophomores provides academic instruction in the fundamentals of leadership and management plus an introduction to the military role in American society and current military organization and capabilities. Military history is highlighted in tracing the development of military principles and concepts utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practical instruction in developing individual leadership skills is emphasized between the junior and senior years, when students attend a six-week paid, advanced training camp at Fort Lewis, Washington. Selected students also may participate in active duty training programs such as Ranger School, Air Assault School, National War College, Special Forces School, and the Special Operations Forces School.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army and are either on active duty or with the National Guard or in the Army Reserve near their home. Those choosing active duty serve a minimum of three years.

Students who have not taken the basic course may qualify for the advanced course.
Credit For Prior Training

Students with prior military training or experience may qualify for basic course credit and may enter the advanced course. Prior service personnel are given advanced placement within the ROTC program and may be eligible for a commission within two years.

Although the full Army ROTC program normally spans four years, it can be completed in two, three, or three and one-half years, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may apply for a delay of entry or active duty to attend graduate school. No additional time is required on active duty for such delays. Delays of up to three years to attend medical, dental, and law schools are normally granted.

Special Programs

The Black belts is a fraternal organization that engages in intercollegiate military skills competition. Cadets compete for individual, local, and national awards for leadership, academic achievement, athletics, and military proficiency. The department sponsors military-oriented ceremonial and social activities throughout the year, including the annual ball, a formal dinner called Cadet Corps Dinnin-
g, and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field problems and military skills instruction. It uses a variety of military equipment, such as helicopters and PM radio, in practical leadership exercises and in support of field training. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineer District, and Camp Dodge, near Des Moines, to observe army operations and review equipment. Cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships, providing tuition, allowance for books, laboratory fees, and a $150-per-
month tax-free subsistence allowance, are available to high school seniors and students enrolled in military science courses. Three- and two-year scholarships also are available.

All cadets in the advanced course receive a $100-per-month, tax-free subsistence allowance. Cadets attending summer camps are paid while there and receive travel allowances. Students are supplied with books for University classes taught by military faculty and uniforms for training exercises. Veterans continue to draw both the ROTC allowances plus any other benefits to which they are entitled. Non- scholarship advanced course students also may participate in the Simultaneous Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $2,600 per year in addition to the new U.S. Bld and serve as officer trainers in guard and reserve units in the local area while attending the University.

Courses

23-01 Introduction to the Military 1 s.h.
A typographical approach to military organizations with emphasis on the U.S. Army, division level and above. Includes basic organization of the military services, training, standard operating procedures, and planning techniques of the army officer and contracted officer duties and responsibilities, and an introduction to reporting and rifle marksmanship.

23-02 Foundations of Military Organizations 1 s.h.
Analysis of the role of the military in American society and the interplay among political, economic, social, and basic history of the U.S./World War II, the military establishment, present defense strategy, current issues, and an introduction to leadership and management topics of further development in other courses.

23-03 Strategic and Tactical Military Analysis I 1 s.h.
Theory and application of military strategic and tactical analysis. Survey of American military history since the American Revolution with respect to the principles of war as developed by Clausewitz.

23-04 Strategic and Tactical Military Analysis II 1 s.h.
Introduction to small-unit tactical military leadership requirements, with emphasis on individual and small-unit skills. Law of armed forces, military justice, combat leadership, and leadership characteristics of small groups highlighted.

23-05 Fundamentals of Military Organization and Operations 3 s.h.
Comprehensive course covering the essential principles of warfare, including principles of warfare, tactical doctrine, leadership, and communication. Command structure, and employing the military...

23-111 Small Unit Leadership 3 s.h.
A leadership course which emphasizes team and unit group process and leadership, performance, human relations, decision making, and learning, including preparation for and conduct of student-led classes to developed subject areas. Management/leadership instruction focuses on participation in a leadership assessment program designed to promote leadership-oriented skills which are transferable to the officer evaluation system.

23-112 Principles of Military Operations 3 s.h.
Fundamentals of military planning and preparation of operations with application to troop-oriented decision making. Emphasis on the employment of military forces in a tactical environment. Students are exposed to basic tactical concepts, doctrine, and military operations as they are applied to a real situation. Comprehensive review at the end of the semester...

23-113 Law and Government 3 s.h.
Emphasis on management and leadership in large organizations, including leadership within the law and the military justice system as it applies to a non-brokendown, comprehensive review of the requirements of a profession and the necessity for professional ethics. Effective management of research and organizational behavior problems are highlighted. Prerequisite: 23-114 and 23-117.

23-114 Leadership and Ethics 3 s.h.
Comprehensive review of leadership and leadership instruction related to the ethical leadership principles in the basic course. Administrative, ethical, and management ethics issues of public administration and the military are examined. Prerequisite: 23-113 and 23-117.

23-115 Introduction to Contemporary Military Issues 2 s.h.
Introduction to contemporary military issues. Includes examination of military issues through analysis of events in military science to expand knowledge on military and political topics. The student is expected to learn the role of leadership in military science or expansion.

Museum Training

Chair and curator: George G. Schmoocher
Assistant professor: George G. Schmoocher
Adjunct associate professor: Diana C. Anderson
Adjunct instructor: William W. Thomas

The Museum of Natural History offers courses that provide a fundamental background in the history, philosophy, and management of museums; their functions and organizational procedures; and the conceptual, design, and technical aspects of exhibit preparation. The museum instructional program at The University of Iowa is the oldest of more than 75 university- and college-based curricula in the United States, with courses offered continuously since 1916. The museum field school and annual summer training graduate programs occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada.

A major in one of the natural sciences (biology, geology, or botany), anthropology, science education, art, or history is recommended for students preparing for museum careers. Courses are offered during the annual eight-week summer session as well as during the regular academic year. These elective college courses count as credit toward the B.A. or B.S. degree.

For graduate work, courses may be credited as a formal museum minor concentration on a master's degree in anthropology or science education, or a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate major department.

Courses presented in this department are of two types: those required for all students pursuing careers in science museums, but also to those who seek supplemental instruction for majors or specialized interests in the arts and humanities. Advanced museum students can gain practical experience by participating in directly programs of The University of Iowa Museum of Natural History and other formal internships with other museums.
Music

Director: Marilyn Sivertson
Assistant Director: John D. Hindle


Professor/Psychologist: Thomas Kyrie, Albert T. Luger, Thomas Malt, Frank Mauk, Charles B. Harkness, Harry Hall, Marvin Thompson, Thomas Turner, Hine Vanessa

Associate Professor/Psychologist: Thomas Kyrie, Albert T. Luger, Thomas Malt, Frank Mauk, Charles B. Harkness, Harry Hall, Marvin Thompson, Thomas Turner, Hine Vanessa

All undergraduate students who plan to major in music are expected to audition either in person or by tape recording in advance of registration. Transfer students also must take the above audition examination in music theory (see "Graduate Programs Below)."

Students with deficiencies in theory must register for 211 Review Theory.

All baccalaureate candidates in music must satisfactory all College of Liberal Arts General Education Requirements except that B.M. candidates are exempt from the historical perspectives requirement. The following School of Music course requirements also are required:

1. 3.0 Literature and Theory I & II 6 s.h.
2. 5.5-6 Aural Skills I & II 4 s.h.
3. 5.5-6 Literature and Theory III & IV 4 s.h.
4. 5.7-8 Aural Skills III & IV 6 s.h.
5. 5.70 History of Music I & II 6 s.h.
6. 5.71 Group Instruction in Piano 1-4 or the successful completion of proficiency exams I and II 2 s.h.
7. 5.10 Techniques of Conducting 2 s.h.
8. Recital Attendance (required of wind, percussion, and string majors for seven semesters) 2 s.h.
9. 144 Senior Recital 1 s.h.
10. Four semester hours of electives from the following: 6 s.h.
11. 154 Undergraduate Composition 6 s.h.
12. 154-157 Arranging for Band or Orchestra 4 s.h.
13. 154 Jazz Improvisation I or II 3 s.h.
14. 154 Jazz Improvisation II or III 3 s.h.
15. 157 Orchestration 3 s.h.
16. 157-167 Composition Forms 6 s.h.
17. 157 Tonal Forms 3 s.h.
18. 157-167 Analysis of Music Literature, 1600-1750 3 s.h.
19. 157-167 Analysis of Music Literature, 1750-1825 3 s.h.
20. 157-167 Analysis of Music Literature, 1825-1900 3 s.h.
21. 157-167 Analysis of Music Literature, 1915-1940 3 s.h.
22. 157-167 Analysis of Music Literature, Special Topics 3 s.h.
23. 157-167 Harmony 3 s.h.
24. 157-167 Counterpoint 3 s.h.
25. 157-167 Music Theory 3 s.h.
26. 157-167 Music Theory, Special Topics 3 s.h.

Students also must participate in a major ensemble each semester of residence (minimum total of 8 semester hours). During the sophomore year, students must be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String majors participate in University Orchestra and in Quintet Orchestra. Keyboard majors may participate accompanying for major ensemble participation for two semesters during their junior and/or senior years, with the consent of their advisors. Any requests for adjustment of this requirement should be submitted in writing to a review committee consisting of the ensemble directors involved, the major teacher, and a representative from the director’s office. The committee meets regularly at the end of each early registration period.
Music History Major

In addition to the general requirements for the B.M. degree, a list of course requirements for the music history major is available in the music office.

A senior thesis replaces the required 15 credits of applied music majors. It consists of a paper that demonstrates the student's ability to conduct research.

Music Education

Areas of concentration in music education are instrumental, vocal music, and music therapy. In addition to the I.A. or B.M. requirements in music and liberal arts, certification to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of content, methods, and materials. Requirements in the instrumental and vocal areas are listed below.

String Majors

Instruction in performance

2 s.h.
(Violin and viola majors take one year of 23-21; 25-21; cello and bass majors take one year of 23-21; Violin)

31-30 Choral Settings 1-2 s.h.
(Choruses take viola and bass; violas take violin; I.A. or B.M. students required to take cello; bassists take viola and cello.)

7 143 Instrumental Techniques 2 s.h.
(normal clarinet and cornet)

25-407 Techniques of Conducting 2 s.h.

25-156 Instrumental Conducting 1 s.h.

25-155 String Methods and Materials 4 s.h.

7 144 Methods and Materials: Elementary School 2 s.h.

7 149 Observation and Laboratory Practice in the Secondary School 6 s.h.

7 132 Laboratory Practice in the Elementary School 6 s.h.

7 157 Seminar: Curriculum and Student Teaching 1 s.h.

Brass, Woodwind, or Percussion Majors

Brass, woodwind, or percussion majors in music education participate in a concert band each semester and in marching band for two full semesters during the first two years in residence. In residence, the student may substitute marching band practice for marching band, with permission of their adviser and the director of bands. Courses required:

8 s.h.

7 143 Instrumental Techniques

8 s.h.

7 147 Techniques of Conducting

1 s.h.

7 148 Instrumental Methods and Materials: Elementary School 1 s.h.

2 s.h.

7 138 Methods and Materials: Elementary School 1 s.h.

3 s.h.

7 138 Methods and Materials: Secondary School 1 s.h.

6 s.h.

7 191 Observation and Laboratory Practice in the Secondary School 6 s.h.

1 s.h.

7 192 Laboratory Practice in the Elementary School 1 s.h.

7 198 Seminar: Curriculum and Student Teaching 1 s.h.

Vocal and Keyboard Majors

Vocal performance majors should consult the music office for recommendations.

7 137 Choral Methods 3 s.h.

7 148 Choral Conducting and Literature 2 s.h.

3 s.h.

7 115-116 Election for Singers I-II 4 s.h.

7 140 Methods and Materials: Elementary School 3 s.h.

7 142 Methods and Materials: Secondary School 3 s.h.

7 141 Observation and Laboratory Practice in the Secondary School 6 s.h.

7 192 Laboratory Practice in the Elementary School 6 s.h.

7 187 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard majors preparing for music teacher certification must pass the entry exam for the state teacher certification examination.

7 159 Keyboard Majors (Non vocal)

Keyboard majors who elect to teach in the vocal area must complete the requirements in either the keyboard woodwind/percussion or string area and pass the state certification examination of the State Board of Education.

7 157 Seminar: Curriculum and Student Teaching 1 s.h.

Teaching Minor

Students qualify for certification as elementary school general music teachers by completing the approved certification program for elementary teachers and 22-23 semester hours as follows:

5 s.h.

7 119 Beginning Folk Guitar

5 s.h.

7 145 Methods and Materials: Elementary School General Music

4 s.h.

7 120 Laboratory Practice in the Elementary School

2 s.h.

Applied major ensemble (chorus, band, or orchestra) 2 s.h.

Two of the following:

5 s.h.

5 1 Literature and Theory I

4 s.h.

5 1 Literature and Theory II

4 s.h.

5 15 Fundamentals of Music

Music Therapy

Admission to the program in music therapy is based on a successful completion of 25 114 Orientation to Music Therapy. In addition to the specific courses in music therapy listed below, specific courses are required in biology, sociology, abnormal psychology, and social psychology.

A six-month internship in an approved off-campus clinic is required before the completion of the degree. Following successful completion of the internship, students may apply for registration with the National Association for Music Therapy, and are qualified to sit for the certification board examination. To increase job opportunities in the education sector, students are encouraged to complete music teacher certification requirements.

Course requirements for the major in music therapy are:

3 s.h.

25 14 Music Therapy Practicum

1 s.h.

25 15 Music Therapy Practicum

1 s.h.

25 16 Music Therapy Practicum

1 s.h.

25 17 Music Therapy Practicum

1 s.h.

25 18 Music Therapy Practicum

1 s.h.

25 19 Music Therapy Practicum

1 s.h.

25 20 Music Therapy Practicum

1 s.h.

25 21 Music Therapy Practicum

1 s.h.

25 22 Music Therapy Practicum

1 s.h.

25 23 Music Therapy Practicum

1 s.h.

25 24 Music Therapy Practicum

1 s.h.

25 25 Music Therapy Practicum

1 s.h.
Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music literature, and languages is particularly recommended. An honors committee appointed by the honors advisor and the student's faculty sponsor evaluates the student's work.

Honors achievement in music is recognized at the annual Honors Convocation and on occasion.

See the school's honors advisor for more information.

Financial Aid

A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Minor

A student may minor in music by completing 15 semester hours in the School of Music. 2 of which must be in advanced courses. A complete list of advanced courses is available at the music office. In addition to the College of Liberal Arts requirements for completing a minor, only 2 semester hours of the 15 may be in applied lessons and 2 semester hours in ensembles.

Graduate Programs

Entering graduate students must take the School of Music advisory examination in music theory (harmony, ear training, forms, and counterpoint), and history and literature, before registering. The advisory examination is given each semester on the two days (excluding Sunday) before registration. A student describing the general content of these tests may be admitted from the director's office, School of Music. (For general graduate admissions, degree, and examination requirements, see the "Graduate College" section of the Catalog.)

Theory Pedagogy Minor

Students with junior or senior standing who are in the honors program may undertake work leading to the bachelor's degree (B.M. or B.A.) with honors. "Graduation with honors" is awarded after completion of 6-8 semester hours in music. For projects which credit is given in 2579, arrangements (made by student and approved by music professor) can be in arrangements; and honors essays, research papers, editorials, and reviews. A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses or be required for graduation (e.g. 24 114 Senior Recital).

Graduate students in music are encouraged to take graduate-level courses. Advanced course work in music history, music literature, and languages is particularly recommended. An honors committee appointed by the honors advisor and the student's faculty sponsor evaluates the student's work.

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Admission
Before applicants are considered for admission, they must submit the following:
Composition—representative musical scores
Theory—analysis or research papers
Music education—no materials required
Performance (including conducting)—audition
Musicology—research papers, theses
Pedagogy—contact School of Music
Information about specific admission and curricular requirements for each area is available from the director’s office.

Master of Fine Arts
The M.F.A. is for students of superior ability in composition, instrumental or vocal performance, conducting, and opera theater directing. It requires a minimum of 48 post-baccalaureate semester hours. In addition to the entrance and curricular requirements for the Master of Arts degree, the student must complete at least two full-length recitals or programs (25-401 M.F.A. Thesis) for which a maximum of 8 semester hours of credit will be granted. The student may earn a Master of Arts degree, but all requirements for each degree—including two final examinations—must be met completely, with a minimum combined total of 60 semester hours of graduate credit. (See the "Graduate College" section of the Catalog for further details.)

Doctoral Degrees
General Requirements
All doctoral study in music includes:
Minimum course requirements listed under the M.A. degree;
One or more additional electives from the analytical studies sequence 25:146-152, 25:212, 25:215, or 39:222, or equivalent;
One or more additional courses in the history of music chosen from those listed in the master’s degree requirements;
25:95 Musical Acoustics or equivalent;
Reading proficiency in at least one foreign language (must be completed before comprehensive examination; music education students may substitute two courses in statistics for this requirement) and dissertation.

Doctoral students must participate in a major ensemble during each term of registration unless excused by their advisors (see previous list of major ensembles). During the summer semester, students should be available for ensemble participation as needed. Keyboard majors may substitute accompaniment in place of a major ensemble, at the adviser's discretion.

Doctor of Philosophy
Areas of concentration for the Ph.D. include composition, musicology, music education, music theory, and music literature. The music literature program is designed for students who already have achieved a professional level of musical performance. The student is required to audit in his or her major performance area.
Information about specific admission and curricular requirements for each area is available from the director’s office.

Doctor of Musical Arts
Requirements for the D.M.A. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a concerto performance with orchestra or other appropriate ensemble. Vocalists may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors will present two performances.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay.

Admission
Before students are considered for admission to a doctoral program, they must have submitted supporting materials in their indicated area of concentration, as follows:
Composition—representative musical scores
Theory—analysis or research papers
Music education—research papers
Music literature—research papers and audition
Performance (including conducting)—audition
Music history and musicology—research papers, theses

Graduate Awards
Qualifying graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.

Music for Nonmajors
Courses particularly recommended for students who are not majoring in music but who have an unusual interest in it include 25:13-14 Masterpieces of Music; 25:139 (Last Eighteenth- and Nineteenth-Century Composers); 25:160 Early Eighteenth- and Twentieth-Century Composers; the sequence 25:103-104 World Music I-II; for students interested in non-Western music, 25:10 Fundamentals of Music; and 25:154 Beginning Folks Guitar is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment.
Participation in School of Music ensembles is open to all University students with the ensemble director’s approval (see previous list of major ensembles).

Nonmajors interested in performance should consult music advisors regarding appropriate courses in applied music.

Special Programs
The Center for New Music is a performance ensemble within the School of Music. Begun in 1970 with a Rockefeller grant, the center provides year-round activities for students in music; its activities range from a multi-year music-theater production to a small solo chamber ensemble. The Music Building includes 55 teaching studios, 23 recital rooms, a large library, two electronic music laboratories, an orchestra rehearsal hall, a state-of-the-art piano studio, and a full-service catering facility. The New Music activities have received national support from the National Endowment for the Arts, the Rockefeller Foundation, and the New York City Council. The program is directed by the University of Iowa’s New Music Center, which is the only one in the Art Institute of Chicago, New York City, and Los Angeles. The New Music Center is located in the Music Building and is housed in the School of Music, which is part of the University of Iowa’s College of Liberal Arts and Sciences.

The University of Iowa College of Liberal Arts and Sciences is located in the Music Building and is housed in the School of Music, which is part of the University of Iowa’s College of Liberal Arts and Sciences.

Resources
The intensive training program for composers and performers at the School of Music includes a comprehensive curriculum in music theory, composition, and performance, as well as opportunities for collaboration with other artists. The School of Music also hosts a variety of events, including concerts, masterclasses, and lecture series, which provide opportunities for students to interact with leading artists and researchers. In addition, the School of Music supports a number of student organizations and clubs, providing a vibrant and diverse community for students to engage with the arts.

Resources
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(including compact discs and videocassettes); and 300 current periodicals in several languages. The collection of reference materials is particularly strong, supporting research in many areas of musical study. The rare book holdings include a large number of late eighteenth-and nineteenth-century scores. The library's quarters in the Music Building provide seating for 100 people and are supplemented by 320 listening stations in the sound recording room. Physical facilities also include a microfiche reading room, a typing room, and a combined rare books and seminar room.

**Courses**

**General**

25:08 Cooperative Education Internship 1.0 b.
25:10 Introduction to Music 3.0 b.
25:33 Wonders of Music I 3.0 b.
25:34 History of Music from the eighteenth through the nineteenth century 3.0 b.
25:36 Masterpieces of Music 3.0 b.
25:38 Composition Seminar 3.0 b.
25:127 Orchestration 1.0 b.
25:190 Wind Chamber Music 3.0 b.
25:390 Performers' Workshop 3.0 b.
25:192 Advanced Analysis and Interpretation 3.0 b.
25:195 Composition Seminar 3.0 b.
25:206 Organ Pedagogy 3.0 b.
25:300 Survey of Musical Literature 3.0 b.
25:306 Literature and Theory I 3.0 b.
25:307 Literature and Theory II 3.0 b.
25:309 Conducting of Choirs 3.0 b.
25:312 Musical Fundamentals 1.0 b.
25:313 Musical Fundamentals 1.0 b.
25:314 Literature and Theory IV 3.0 b.
25:315 History, Criticism, and Interpretation of Western Art Music 3.0 b.
25:316 Advanced Composition 3.0 b.
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25:423 Advanced Composition 3.0 b.
25:424 Advanced Composition 3.0 b.
25:425 Advanced Composition 3.0 b.
25:426 Advanced Composition 3.0 b.
25:427 Advanced Composition 3.0 b.
25:428 Advanced Composition 3.0 b.
25:429 Advanced Composition 3.0 b.
25:430 Advanced Composition 3.0 b.
25:431 Advanced Composition 3.0 b.
25:432 Advanced Composition 3.0 b.
25:433 Advanced Composition 3.0 b.
25:434 Advanced Composition 3.0 b.
25:435 Advanced Composition 3.0 b.
25:436 Advanced Composition 3.0 b.
25:437 Advanced Composition 3.0 b.
Music and Technology
See also Experimental Musical Studio I and II under "Composition."

25.104 Recording Techniques
Preparatory: course of instruction.

25.106 Art and Technology II
Preparatory: course of instruction.

25.107 Sound and Audio Recording
Preparatory: course of instruction.

25.108 Musical Acoustics
Same as 25.107.

Research and Literature

25.142 Sound Percussion Methods, Materials, Performance Practices
Contemporary percussion literature and current styles, aesthetics, techniques of performance and composition. Preparatory: course of instruction.

25.144 Keyboard I

25.149 Special Studies

25.152 History of Organ Building and Design
Development of organ design from the Middle Ages to present. Basic concepts of construction and maintenance. May be repeated. Not allowed every year.

25.157 Literature II
Major works of some of the most important composers from the 20th century. Should be taken by all students.

25.158 Literature II
More advanced and important basic literature. May be repeated. Not allowed every year. Open to regular majors only. Open to all students of the literature.

25.159 Organ Literature
Fundamental literature from the late 18th century to the present. May be repeated, special topics in advanced orginal. Open to advanced undergraduates and graduate students.

25.163 Classical Musical Orchestral
Symphonic repertoire of the 19th century. Preparatory: 25.50 or equivalent.

25.164 Vocal Study in Vocal Literature
Vocal instruction in the work of a selected composer.

25.165 Advanced Choral Literature I
Preparatory: 25.01 through 25.08.

25.166 Advanced Choral Literature II
Choral music from the Renaissance through contemporary.

25.167 Oratorio Literature
Preparatory: 25.01 through 25.08.

25.168 Singing Instrument Literature
Preparatory: 25.01 through 25.08.

25.169 Piano Literature I
Preparatory: 25.01 through 25.08.

25.170 Piano Literature II
Preparatory: 25.01 through 25.08.

25.173 Seminar in Woodwind Instrument Performance
Preparatory: 25.01 through 25.08.

25.179 Seminar in Organ Literature
Preparatory: 25.01 through 25.08. Open to regular majors only. Open to all students with approval of instructor.

25.184 Seminar in Choral Literature and Analysis I
Choral works from the Renaissance.

25.185 Seminar in Choral Literature and Analysis II
Choral works from the Classical-Romantic period.

25.186 Seminar in Choral Literature and Analysis III
Contemporary choral works.

Honors Program

28.1 Honors in Music
May be repeated.

Music Education
Other music education courses are offered by the divisons of Childhod and Elementary Education and Secondary Education in the College of Education. See those sections of the Catalog for listings and descriptions. Where dual numbers are indicated, students preparing for music teacher certification should register under the education number.

25.17 Group Instruction in Piano I
Preparatory: intermediate skills or beyond. Group instruction for students who have completed piano instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.18 Group Instruction in Piano II
Preparatory: intermediate skills or beyond. Group instruction for students who have completed piano instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.27 Group Instruction in Piano III
Preparatory: intermediate skills or beyond. Group instruction for students who have completed piano instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.28 Group Instruction in Piano IV
Preparatory: intermediate skills or beyond. Group instruction for students who have completed piano instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.36 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.49 Music Therapy Practicum I
Supervised clinical training with adult clients and supervision of a variety of health care settings. Students take these seminars on a practicum basis for 2, 3, and 4. Open only to music therapy majors. Preparatory: 25.48.

25.53 Music Therapy Specializations I and II
Preparatory: 25.49 or equivalent. Open only to students of the music therapy program.

25.54 Music Therapy Specializations I and II
Preparatory: 25.49 or equivalent. Open only to students of the music therapy program.

25.56 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.57 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.58 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.59 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.60 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.

25.61 Group Instruction in Vocal Literature
Preparatory: intermediate skills or beyond. Group instruction for students who have completed vocal literature instruction in a community or school setting. Open only to intermediate skill level and to students enrolled in the College of Education.
25-119 Advanced Instrumental Methods and Literature I 3 2 2 a. h.
25-119 Advanced Instrumental Methods and Literature II 3 2 2 a. h.
25-121 Advanced Music Method and Literature 3 2 2 a. h.
25-122 Instrumental Music Workshop 1 2 2 a. h.
25-221 Special Studies in Music Therapy 3 2 2 a. h.
25-222 First Pedagogy I 3 2 2 a. h.
25-222 First Pedagogy II 3 2 2 a. h.
25-222 First Pedagogy III 3 2 2 a. h.
25-232 First Pedagogy IV 3 2 2 a. h.
25-232 First Pedagogy V 3 2 2 a. h.
25-232 First Pedagogy VI 3 2 2 a. h.
25-232 First Pedagogy VII 3 2 2 a. h.
25-232 First Pedagogy VIII 3 2 2 a. h.
25-232 First Pedagogy IX 3 2 2 a. h.
25-232 First Pedagogy X 3 2 2 a. h.
25-232 First Pedagogy XI 3 2 2 a. h.
25-232 First Pedagogy XII 3 2 2 a. h.
25-232 First Pedagogy XIII 3 2 2 a. h.
25-232 First Pedagogy XIV 3 2 2 a. h.
25-232 First Pedagogy XV 3 2 2 a. h.
25-232 First Pedagogy XVI 3 2 2 a. h.
25-232 First Pedagogy XVII 3 2 2 a. h.
25-232 First Pedagogy XVIII 3 2 2 a. h.
25-232 First Pedagogy XIX 3 2 2 a. h.
25-232 First Pedagogy XX 3 2 2 a. h.
25-232 First Pedagogy XXI 3 2 2 a. h.
25-232 First Pedagogy XXII 3 2 2 a. h.
25-232 First Pedagogy XXIII 3 2 2 a. h.
25-232 First Pedagogy XXIV 3 2 2 a. h.
25-232 First Pedagogy XXV 3 2 2 a. h.
25-232 First Pedagogy XXVI 3 2 2 a. h.
25-232 First Pedagogy XXVII 3 2 2 a. h.
25-232 First Pedagogy XXVIII 3 2 2 a. h.
25-232 First Pedagogy XXIX 3 2 2 a. h.
25-232 First Pedagogy XXX 3 2 2 a. h.
25-232 First Pedagogy XXXI 3 2 2 a. h.
25-232 First Pedagogy XXXII 3 2 2 a. h.
25-232 First Pedagogy XXXIII 3 2 2 a. h.
25-232 First Pedagogy XXXIV 3 2 2 a. h.
25-232 First Pedagogy XXXV 3 2 2 a. h.
25-232 First Pedagogy XXXVI 3 2 2 a. h.
25-232 First Pedagogy XXXVII 3 2 2 a. h.
25-232 First Pedagogy XXXVIII 3 2 2 a. h.
25-232 First Pedagogy XXXIX 3 2 2 a. h.
25-232 First Pedagogy XL 3 2 2 a. h.
25-232 First Pedagogy XLI 3 2 2 a. h.
25-232 First Pedagogy XLII 3 2 2 a. h.
25-232 First Pedagogy XLIII 3 2 2 a. h.
25-232 First Pedagogy XLIV 3 2 2 a. h.
25-232 First Pedagogy XLV 3 2 2 a. h.
25-232 First Pedagogy XLVI 3 2 2 a. h.
25-232 First Pedagogy XLVII 3 2 2 a. h.
25-232 First Pedagogy XLVIII 3 2 2 a. h.
Nuclear Medicine Technology

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Philosophy

Director: Philip Connolly

Professor: Lord Addis, Parvez Bachraoch, Philip Connolly, Richard Furetman

Associate professors: James Duttlinger, Eun Tae

Assistant professors: Scott MacDonald, Phyllis Robinson

Degrees offered: B.A., M.A., Ph.D.

Undergraduate Program

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytical skills. A major in philosophy develops abilities useful for graduate or professional work in many fields—for example—and for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy.

Bachelor of Arts

The Bachelor of Arts degree requires at least 24 semester hours of credit in courses numbered from 26:102 through 26:190, and must include:

26:103 Introduction to Symbolic Logic
26:111 Ancient Philosophy
26:114 Modern Philosophy: Descartes through Kant

Bachelor of Science

The final 12 semester hours of philosophy courses used to complete these departmental requirements must be taken at The University of Iowa. Undergraduate majors in philosophy are expected to take four semester hours of the liberal arts General Education Requirement in historical perspectives.

In addition to prerequisites listed to individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of a major's undergraduate education. For further details consult the director of undergraduate studies.

Minor

In order to achieve a minor in philosophy, a student must take and pass a minimum of 18 semester hours in philosophy courses. Of these, a minimum of 12 hours must be in courses that are numbered above 260 and are taught in the Department of Philosophy at the University of Iowa. For further details consult the director of undergraduate studies.

Honors

The department administers an Honors Program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be registered in the College of Liberal Arts Honors Program, and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, a student must complete the regular requirements for an undergraduate major in philosophy with a grade-point average in the philosophy courses of at least 3.6, and must write an acceptable honors thesis on a significant topic in an area of philosophy of the student's interest. For further details consult the director of undergraduate studies.

Graduate Programs

The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main areas in the graduate program are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts

The Master of Arts degree requires a minimum of 30 semester hours and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. Passing an oral final examination also is required. There is no foreign language requirement. For details consult the director of graduate studies.

Doctor of Philosophy

The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time the dissertation is completed. Candidacy for the doctoral program is determined by a vote of the entire faculty of the Department of Philosophy, usually after the student has completed three semesters of graduate study in residence.
Physical Education and Dance

Chair: N. Peggy Burke
Professors: Jane H. Grant, Francis S. Shaw
Associate Professors: Judith L. Amin, Susan M. Baer, Susan M. Brown, N. Peggy Burke, Diane L. Gilmour, Terrence C. Grant, Francis L. Grant, Joseph S. Grant, Yvonne L. Johnson
Assistant Professors: David B. Dentler, Helen Joanessauw, Susan Wolf

The Department of Physical Education and Dance offers bachelor's degree programs with emphases in physical education (teaching and non-teaching majors), the coaching of sports, the teaching of dance, dance performance, and sports communications. It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Undergraduate Programs in Physical Education

Each undergraduate student in physical education selects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism, and broadcasting, fitness and health clubs, sport specialist and sports marketing, and public school teaching and coaching.

Students acquire theoretical background through anatomy, kinesiology, psychology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare students for graduate work in physical education. (See "Graduate Programs" for areas of specialization.)

Students who plan to teach must meet certification requirements (see the "College of Education" section of this Catalog), must maintain at least a 2.5 grade-point average, and must demonstrate competence for teaching and/or leadership roles. Students in the non-teaching major program must complete an internship assignment. A grade-point average of 2.3 is required before registering for the internship.

The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree. (Four semester hours of the General Education Requirements for natural science are waived for physical education majors.)

The programs are as follows:

Teacher Education Program: Physical Education Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:19 Orientation to Physical Education</td>
<td>0.5 h</td>
</tr>
<tr>
<td>28:21 Orientation to Physical Education</td>
<td>0.5 h</td>
</tr>
<tr>
<td>28:37 Advanced First Aid and CPR (10 Red Cross Certification)</td>
<td>2.5 h</td>
</tr>
<tr>
<td>28:41 Anatomy</td>
<td>3 h</td>
</tr>
<tr>
<td>27:53 Human Anatomy</td>
<td>3 h</td>
</tr>
<tr>
<td>28:81 Kinesiology</td>
<td>3 h</td>
</tr>
<tr>
<td>27:107 Biomechanics of Physical Education</td>
<td>3 h</td>
</tr>
<tr>
<td>28:82 Measurement</td>
<td>3 h</td>
</tr>
<tr>
<td>28:106 Physiological Exercise</td>
<td>3 h</td>
</tr>
<tr>
<td>27:141 Exercise Physiology</td>
<td>3 h</td>
</tr>
<tr>
<td>28:107 Physical Education for the Handicapped</td>
<td>2-3 h</td>
</tr>
<tr>
<td>28:108 Physical Education for Special Students</td>
<td>3 h</td>
</tr>
<tr>
<td>28:120 Administration of Physical Education and Athletics</td>
<td>2 h</td>
</tr>
<tr>
<td>27:103 Administration and Curriculum in Physical Education</td>
<td>3 h</td>
</tr>
<tr>
<td>28:142 Contemporary Issues of Health Education</td>
<td>3 h</td>
</tr>
</tbody>
</table>

Skill Techniques Requirements: Physical Education Majors must complete the following requirements: basketball, volleyball, softball, field sports, intermediate level team sport, hunting and trapping, track and field, lacrosse sport, swimming, intermediate level individual activity, field and floor dance, and modern dance or jazz.

*Pre requisite: 72:130.* Students must complete all courses in option A or B.

Option A: Physical Education and Athletic Emphasis

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:26 Laboratory in Teaching of Sports</td>
<td>1 h</td>
</tr>
<tr>
<td>28:27 Teaching of Dance</td>
<td>2 h</td>
</tr>
<tr>
<td>28:83 Psycho-Social Dimensions of Sport</td>
<td>3 h</td>
</tr>
<tr>
<td>28:12 History and Philosophy of Physical Education</td>
<td>2 h</td>
</tr>
</tbody>
</table>

Option B: Dance Emphasis

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:114 Dance History Primitive Nineteenth Century</td>
<td>3 h</td>
</tr>
<tr>
<td>28:115 Twentieth-Century Dance</td>
<td>3 h</td>
</tr>
<tr>
<td>28:73 Composition I</td>
<td>2 h</td>
</tr>
<tr>
<td>28:74 Composition II</td>
<td>2 h</td>
</tr>
<tr>
<td>28:29 Rhythmic Analysis of Dance</td>
<td>2 h</td>
</tr>
<tr>
<td>28:120 Dance Production</td>
<td>3 h</td>
</tr>
<tr>
<td>78:125 Methods and Materials of Teaching Children's Dance</td>
<td>2 h</td>
</tr>
<tr>
<td>78:126 Advanced dance technique courses</td>
<td>2 h</td>
</tr>
<tr>
<td>78:127 Recital</td>
<td>2 h</td>
</tr>
</tbody>
</table>

Professional Education Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>78:92 Introduction to Methods for Teachers</td>
<td>1 h</td>
</tr>
<tr>
<td>78:93 Methods and Materials in Elementary Physical Education</td>
<td>2 h</td>
</tr>
<tr>
<td>78:155 Educational Psychology and Measurement</td>
<td>3 h</td>
</tr>
<tr>
<td>78:156 Introduction to Teaching Physical Education</td>
<td>2 h</td>
</tr>
<tr>
<td>78:157 Issues in Education</td>
<td>2 h</td>
</tr>
<tr>
<td>78:146 Methods of Secondary Physical Education</td>
<td>3 h</td>
</tr>
<tr>
<td>78:147 Rhythms Relations for the Classroom Teacher</td>
<td>3 h</td>
</tr>
<tr>
<td>78:148 Recital: Curriculum and Student Teaching</td>
<td>2 h</td>
</tr>
<tr>
<td>78:151 Observation and Laboratory Practice in Secondary School</td>
<td>3 h</td>
</tr>
<tr>
<td>78:152 Laboratory Practice in Elementary School</td>
<td>6 h</td>
</tr>
<tr>
<td>78:106 Practicum (optimal)</td>
<td>2 h</td>
</tr>
</tbody>
</table>

Physical Education and Sport Program (non-teaching)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:160 Orientation to Physical Education</td>
<td>1 h</td>
</tr>
<tr>
<td>28:81 Anatomy</td>
<td>3 h</td>
</tr>
<tr>
<td>28:85 Kinesiology</td>
<td>3 h</td>
</tr>
<tr>
<td>28:86 Psychological Exercise</td>
<td>3 h</td>
</tr>
<tr>
<td>28:120 Administration of Physical Education and Athletics</td>
<td>2 h</td>
</tr>
<tr>
<td>28:142 Contemporary Issues of Health Education</td>
<td>3 h</td>
</tr>
<tr>
<td>28:130 Administration and Curriculum in Physical Education</td>
<td>3 h</td>
</tr>
<tr>
<td>28:135 Administration of Fitness/Wellness Programs</td>
<td>2-3 h</td>
</tr>
<tr>
<td>28:25 History and Philosophy of Physical Education</td>
<td>2 h</td>
</tr>
<tr>
<td>28:30 Psycho-Social Dimensions of Sport</td>
<td>3 h</td>
</tr>
<tr>
<td>28:136 Internships</td>
<td>6 h</td>
</tr>
</tbody>
</table>

Sport and Dance Activity Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:33 Physical Education and Athletic Emphasis</td>
<td>1 h</td>
</tr>
<tr>
<td>28:34 Dance Emphasis</td>
<td>2 h</td>
</tr>
<tr>
<td>28:35 Dance Production</td>
<td>3 h</td>
</tr>
</tbody>
</table>

Fitness Specialization

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:33 Physical Education and Athletic Emphasis</td>
<td>1 h</td>
</tr>
<tr>
<td>28:34 Dance Emphasis</td>
<td>2 h</td>
</tr>
<tr>
<td>28:35 Dance Production</td>
<td>3 h</td>
</tr>
</tbody>
</table>
17:41 Food, Nutrition, and You
28:142 Contemporary Issues of Health Education
28:71 Growth and Motor Development
CSC:1 Survey of Computing
Sport Specialist/Sports Administration
28:119 Methods of Secondary
Physical Education
28:48 Fitness for Adults
28:107 Physical Education for the Handicapped
28:37 Advanced First Aid and CPR
28:105 Care of Athletic Injuries
28:14 Theory of Coaching
28:211 Growth and Motor Development
28:11 Survey of Computing
Sports Marketing
28:08 Fitness for Adults
28:161 Sports Information
17:80 Textiles for Consumers
28:21 Survey of Computing
79:105 Design and Production of Media for Instruction
19:81 Introduction to Communication Skills
Program Leading to Coaching Endorsement
Theory of Coaching
28:14 Theory of Coaching
or
28:218 Advanced Coaching
Growth and Development
28:71 Growth and Motor Development
or
17:19 Growth and Development of the Young Child
or
28:106 Child Development
Anatomy
28:80 Anatomy
or
27:53 Human Anatomy
Exercise Physiology
28:106 Physiology of Exercise
or
27:141 Exercise Physiology
Advanced First Aid and CPR
28:37 Advanced First Aid and CPR
27:56 First Aid and CPR
or
Red Cross Certifications
Care and Prevention of Athletic Injuries
(Should be taken following anatomy and physiology)
Basic Athletic Training
28:105 Care of Athletic Injuries
Administration of Physical Education and Athletics
27:103 Administration and Curriculum in Physical Education
or
28:120 Administration of Physical Education and Athletics
Coaching Practicum
70:198 Coaching Practicum
Supervised experience in coaching interscholastic teams under direction of certified secondary school coaches.
Open only to students completing coaching certification programs.
Prerequisite: consent of instructor.
*Open only to graduate students.
Health Education Endorsement Program
The following sequence of courses meets the requirements for Iowa Area
5102 for both the Elementary Endorsement 60 and the secondary Endorsement 20.
Students must complete a minimum of 20 semester hours to fulfill this area.
28:37 Advanced First Aid and CPR 2 s.h.
or
27:56 First Aid and CPR 0 s.h.
or
28:106 Red Cross Certifications in First Aid and CPR
28:41 Food, Nutrition, and You
28:71 Growth and Motor Development
Minor
28:71 Growth and Motor Development
28:72 Methods and Materials in Elementary School Physical Education
28:106 Anatomy
28:81 Kinesiology
28:82 Measurement
28:83 Psycho-Social Dimensions of Sport
28:89 Physiology of Exercise
28:119 Methods of Secondary Physical Education
28:121 History and Philosophy of Physical Education
28:142 Contemporary Issues of Health Education
The following skills courses listed are required for the minor: basketball, volleyball, field hockey, field sports, intermediate level team sport, tamping and apparatus, track and field, racquet sport, swimming, intermediate level individual activity, folk and square dance, and modern dance or degree and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serves.
The curriculum assists students in developing skills that are applicable to a wide range of careers in working with young people.
Graduate Programs in Physical Education
This program is intended for the prospective professional who is preparing for a career in teaching, research, coaching, etc.

Health Education Endorsement Program
The following sequence of courses meets the requirements for Iowa Area
5102 for both the Elementary Endorsement 60 and the secondary Endorsement 20.
Students must complete a minimum of 20 semester hours to fulfill this area.
28:37 Advanced First Aid and CPR 2 s.h.
or
27:56 First Aid and CPR 0 s.h.
or
28:106 Red Cross Certifications in First Aid and CPR
28:41 Food, Nutrition, and You
28:71 Growth and Motor Development
Minor
28:71 Growth and Motor Development
28:72 Methods and Materials in Elementary School Physical Education
28:106 Anatomy
28:81 Kinesiology
28:82 Measurement
28:83 Psycho-Social Dimensions of Sport
28:89 Physiology of Exercise
28:119 Methods of Secondary Physical Education
28:121 History and Philosophy of Physical Education
28:142 Contemporary Issues of Health Education
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Graduate Programs in Physical Education
This department was one of the pioneers in providing graduate physical education programs for women, especially at the doctoral level. It has awarded more than 400 master's and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serves.

Minor
28:71 Growth and Motor Development
28:72 Methods and Materials in Elementary School Physical Education
28:106 Anatomy
28:81 Kinesiology
28:82 Measurement
28:83 Psycho-Social Dimensions of Sport
28:89 Physiology of Exercise
28:119 Methods of Secondary Physical Education
28:121 History and Philosophy of Physical Education
28:142 Contemporary Issues of Health Education
The following skills courses listed are required for the minor: basketball, volleyball, field hockey, field sports, intermediate level team sport, tamping and apparatus, track and field, racquet sport, swimming, intermediate level individual activity, folk and square dance, and modern dance or degree and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serves.

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Minor
28:71 Growth and Motor Development
28:72 Methods and Materials in Elementary School Physical Education
28:106 Anatomy
28:81 Kinesiology
28:82 Measurement
28:83 Psycho-Social Dimensions of Sport
28:89 Physiology of Exercise
28:119 Methods of Secondary Physical Education
28:121 History and Philosophy of Physical Education
28:142 Contemporary Issues of Health Education
The following skills courses listed are required for the minor: basketball, volleyball, field hockey, field sports, intermediate level team sport, tamping and apparatus, track and field, racquet sport, swimming, intermediate level individual activity, folk and square dance, and modern dance or degree and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serves.

Graduate Programs in Physical Education
This department was one of the pioneers in providing graduate physical education programs for women, especially at the doctoral level. It has awarded more than 400 master's and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serves.

Minor
28:71 Growth and Motor Development
28:72 Methods and Materials in Elementary School Physical Education
28:106 Anatomy
28:81 Kinesiology
28:82 Measurement
28:83 Psycho-Social Dimensions of Sport
28:89 Physiology of Exercise
28:119 Methods of Secondary Physical Education
28:121 History and Philosophy of Physical Education
28:142 Contemporary Issues of Health Education
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Doctor of Philosophy

All doctoral students must complete a minimum of 72 semester hours of graduate work, including general requirements for the master’s degree and credit for the dissertation.

Prerequisites

Competence in the area noted under the M.A. program also is required for doctoral programs. Deficiencies in these areas must be rectified as early as possible.

Research Tools

All doctoral students are required to take a statistics course at an appropriate level at The University of Iowa. Students may choose either a foreign language or computer science as their second research tool.

The language requirement may be satisfied by taking two semesters of a given language with a minimum grade of C, by passing a Graduate Record Examination (GRE) Aptitude Test in a given language, or by passing a Ph.D. language examination.

The computer tool requirement may be satisfied by taking 3 semester hours as approved by the departmental graduate committee.

Required Courses

28:301 Research Forum 0 s.h.
28:301 Seminar in Research 2 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
28:401 Thesis (for students on thesis option) 3 s.h.

Specialization

Students must complete a specialization of 30 semester hours, including dissertation; they also must take satisfactorily 20 semester hours in one or more departments other than physical education, depending on the following specialization areas available to them in the college or university:

- Exercise Science
- Sport Management
- Health Promotion
- Exercise Science and Sport Management
- Health Promotion and Sport Management

Students interested in other areas of specialization are encouraged to submit a plan of study for consideration.

Comprehensive Examination

All doctoral students must pass a comprehensive examination focused on, but not necessarily limited to, their area of specialization. Part of the examination may be oral. The examination is conducted according to the policies established by the departmental graduate committee, and is taken on a date set by the student and his or her advisor. The program of study and dissertation topic must be fixed and the tool requirements met before the student can take the comprehensive examination.

Dissertation

All doctoral students are required to complete a dissertation. A final examination is held with an appropriate committee.

Residency Requirement

Two semesters of at least 9 semester hours in residence at The University of Iowa are required.

Undergraduate Programs in Dance

Bachelor of Arts

Requirements for the Bachelor of Arts are as follows:

Required Courses

28:19 Orientation to Physical Education or Dance 1 s.h.
28:26 Dance Production 3 s.h.
28:29 Rhythmic Analysis of Dance 2 s.h.
28:73 Composition I 2 s.h.
28:74 Composition II 2 s.h.
28:94 Anatomy 3 s.h.
28:91 Kinesiology 2 s.h.
28:91 Dance History: Primitive-Nineteenth Century 3 s.h.
28:105 Twentieth-Century Dance 3 s.h.
28:115 Composition III 2 s.h.
28:116 Composition IV 2 s.h.
28:177 Beginning Lunabration 3 s.h.
25:106 Opera Dance Theatre Production 3 s.h.

Electives

Eight semester hours from the following:

- 28:14 Independent Study
- 28:19 Methods and Materials of Teaching Children’s Dance (same as TE 125) 2-3 s.h.
- 28:113 Ballet Practice 1-2 s.h.
- 28:117 Ballet Pedagogy 3 s.h.
- 28:122 Workshop
- 28:122 Workshop: Artist in Residence 1 s.h.
- 28:130 Improvisation 1 s.h.
- 28:138 Teaching of Modern Dance 3 s.h.
- 28:170 Readings in Dance 1 s.h.
- 28:175 Dance Theory 2 s.h.
- 28:176 Criticism of Dance 3 s.h.
- 28:178 Intermediate Lunabration 3 s.h.
- 28:180 Dance Performance 0-1 s.h.
- 28:191 Independent Choreography 1-4 s.h.
- 28:210 Dance Choreography 4 s.h.

Technique Requirement

Dance majors must take a minimum of four semesters of study in both modern dance and ballet at the student’s appropriate technical level in each discipline. This requirement should be fulfilled during the student’s first two years of study. Eighteen semester hours must be earned in dance technique classes from the following:

- 28:35 Tap 1-2 s.h.
- 28:36 Tap 1 s.h.
- 28:408 Major Modern Dance I 1 s.h.
- 28:409 Major Modern Dance II 1 s.h.
- 28:410 Beginning Ballet 1-2 s.h.
- 28:411 Beginning Ballet 1 s.h.
- 28:412 Low Intermediate Ballet 1 s.h.
- 28:414 Intermediate Training for the Male Dancer 3 s.h.
- 28:415 Major Ballet I 1-2 s.h.
- 28:419 Beginning Jazz 1 s.h.
- 28:521 Beginning Jazz 1 s.h.
Graduate Program in Dance

The Master of Arts degree in physical education (dance specialization) is awarded on completion of at least 30 semester hours of graduate work including thesis.

Prerequisites

Audition

280:75-74 Composition I-II 4 s.h.
280:80 Anatomy 3 s.h.
280:81 Kinesiology 3 s.h.
280:20 Rhythmic Analysis of Dance 2 s.h.
280:25 Modern Dance 3 s.h.
280:114 Dance History: Primitive Twentieth Century 3 s.h.

Required Courses

280:17 Ballet Pedagogy 3 s.h.
280:15 Teaching of Modern Dance 3 s.h.
280:173 Composition III 2 s.h.
or
280:174 Composition IV 2 s.h.
280:171 Beginning Labanotation 3 s.h.
280:115 Twentieth Century Dance 3 s.h.
280:117 Dance Theory 3 s.h.
or
280:116 Criticism of Dance 3 s.h.
280:204 Seminar Dance 2 s.h.
280:322 Seminar: Perspectives of Human Movement 3 s.h.
280:403 Thesis 3-4 s.h.
280:107 Major Modern Dance II 2 s.h.
280:108 Major Modern Dance III 2 s.h.
280:109 Major Ballet II 2 s.h.
280:110 Major Ballet III 2 s.h.
Total 28-32 s.h.

Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Graduate Assistantships:

Graduate assistantships are available in teaching, research, and administrative areas. The assistantship fee varies and includes tuition and fees. Graduate assistantships in this area are usually restricted to those students who have completed at least 12 hours of graduate study and who are in the final year of their advanced degree programs.

Details of the Graduate Assistantship Program may be obtained by writing to the Chair, Department of Physical Education and Dance, Iowa State University, Ames, Iowa 50011.
Physics and Astronomy

Cheryl Dwight R. Nisbett
Professor of Chemistry; Richard C. Barlow; Brian T. Camp; David R. Elowe; Scott M. F. Foulse, Andrew E. A. Freeman; William M. Kline; David E. Kline; Howard J. Langer; Karl E. Linnemann; Edward R. McManus; Robert L. Miller, John J. W. Wood; Richard J. Pink, William E. Savage; John W. Schwartz, Bruce D. Steven; William C. Taylor

Professor emeritus: Edward B. Nelson, James A. Van Allen

Associate professors: Robert L. Merlos, Wayne P. Plyno, Steven R. Spangler

Assistant professors: John A. Coletti, Paul D. Richter; Charles R. Newman

Degree requirements: 3 years for A.B. and B.S., 4 years for M.S., and 5 years for Ph.D. in physics (including specialization in astronomy)
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 for individual scholarly work at an advanced level in selected specialties. Total departmental enrollments typically are 2,500 student registrations during each semester of the academic year and 200 during the summer session. All courses and advanced laboratories are taught by full-time faculty members. Senior faculty members teach the elementary courses and supervise associated laboratories.

Beyond the elementary level, typical course enrollments are 20; there is ample opportunity for individual work. Special introductory courses are offered for majors in physics and astronomy, and for others with special interest in these subjects. There are about 80 undergraduate majors—10 of whom are honor students—plus 35 graduate students in physics or astronomy.

About 40 percent of graduates with bachelor's degrees pursue advanced study. Others find positions in secondary school teaching and in government and industrial laboratories, or use their training as the basis for careers in other fields.

Graduates with M.S. or Ph.D. degrees in physics or astronomy have many opportunities for employment in universities, colleges, and research laboratories in government and industry.

Undergraduate Programs

The department offers the following programs in physics: Bachelor of Science and Bachelor of Arts degrees, and an undergraduate minor. It offers the same programs in astronomy. In addition, a double major in physics and astronomy is offered. Each program is described below.

Bachelor of Science in Physics

The Bachelor of Science program provides preparation for graduate study in physics and related sciences or for employment in research laboratories.

The following courses or their equivalents are required for the Bachelor of Science degree with a major in physics:

- 22M141 Differential Equations for Engineers 3 s.h.
- 22R-42 Vector Calculus for Engineers 3 s.h.
- 224-10 Introductory Physics-I 12 s.h.
- 225-10 Intermediate Mechanics 3 s.h.
- 229-10 Introductory Quantum Mechanics 3 s.h.
- 229-10 Statistical Physics 3 s.h.
- 229-120-130 Electricity and Magnetism 6 s.h.
- 229-132 Intermediate Laboratory (two semesters) 4 s.h.

Two additional courses, one of them at the 190-level, selected from:

- 229-132 Optics 2 s.h.
- 229-128 Electronics 4 s.h.
- 229-132 Intermediate Laboratory (third semester) 2 s.h.
- 229-171 Mathematical Methods of Physics 3 s.h.
- 229-191 Atomic Physics 3 s.h.
- 229-192 Elementary Particles and Nuclear Physics 3 s.h.
- 229-193 Introductory Solid State Physics 3 s.h.
- 229-194 Plasma Physics 3 s.h.

An additional 5 semester hours of introductory course work in another science or engineering field, including computer science but not mathematics. Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements given above to the greatest feasible extent, including further work in mathematics.

Bachelor of Arts in Physics

The Bachelor of Arts program is designed for students who wish to major in physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

- 22M25-26 Calculus-I-II 8 s.h.
- 22M35-36 Engineering Calculus-I-II 8 s.h.
- 22M37-38 Introduction to Linear Algebra 4 s.h.
- 22M28 Calculus III 4 s.h.
- 22M35-36 Engineering Calculus-I-II 8 s.h.
- 22M40 Matrix Algebra for Engineers 2 s.h.

As additional 12 semester hours or more of science is a thematic area as approved by the student's advisor or the course work required for teacher certification.

Minor in Physics

A program of physics courses satisfying the 15 semester hours required for a minor by the College of Liberal Arts must include 12 semester hours of upper level physics courses taken at the University of Iowa, including 229-10 and all 100-level physics courses.

Bachelor of Science in Astronomy

A balanced and integrated program of astronomy, astrophysics, and mathematics, and physics courses is required for the Bachelor of Science degree in astronomy. The purpose of this program is to prepare the student for a career or advanced study in astrophysics, radio astronomy, or space astronomy.

The following courses or their equivalents are required for the Bachelor of Science degree with a major in astronomy:

- 22M25-26 Calculus-I-II 8 s.h.
- 22M27 Introduction to Linear Algebra 4 s.h.
- 22M28 Calculus III 4 s.h.
- 22M35-36 Engineering Calculus-I-II 8 s.h.
- 22M40 Matrix Algebra for Engineers 2 s.h.
- 22M41 Differential Equations for Engineers 3 s.h.
- 22M42 Vector Calculus for Engineers 3 s.h.
29.171-172 Mathematical Methods of Physics 6 s.h.
29.175 Plasma Physics 3 s.h.

Bachelor of Arts in Astronomy

The Bachelor of Arts degree program is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in astronomy. This degree program is appropriate for those planning careers in secondary-school science teaching, technical writing, and science-related administration. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives. The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

22M:25-26 Calculus I-II 8 s.h.
22M:35-36 Engineering Calculus I-II 8 s.h.
29.172-173 Introductory Physics I-II 12 s.h.
or
29.11-12 College Physics 8 s.h.

and

29.75 Introductory Astronomy III 4 s.h.
29.62-63 General Astronomy 8 s.h.
29.115 Intermediate Mechanics 3 s.h.
29.117 Optics 3 s.h.
or
29.114 Statistical Physics 3 s.h.

29.115-116 Introduction to Astronomy I-II 6 s.h.
29.128 Electronics 4 s.h.
29.129 Electricity and Magnetism 3 s.h.
29.132 Intermediate Laboratory 2 s.h.
29.137 Astronomical Laboratory 2 s.h.

Minor in Astronomy

The 15 semester hours of courses required for a minor by the College of Liberal Arts must include 6 semester hours selected from the following:

29.110-111 Introduction to Astrophysics I-II 6 s.h.
29.137 Astronomical Laboratory 2 s.h.

An additional 6 semester hours of courses of 100-level physics courses.

These 12 semester hours must be taken at The University of Iowa.

Double Major in Physics and Astronomy

Students may obtain a double major in physics and astronomy. Those interested in such a combination should consult with their advisors. The general requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalogue.

Honors

Selected junior and senior majors may take 6-8 semester hours of 29.99 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their programs for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

Graduate Programs

Two advanced degrees are offered in physics: the Master of Science—either with thesis or with a critical essay, and the Doctor of Philosophy; and in astronomy, the Master of Science—either with thesis or with a critical essay. Students who wish to pursue a program in astronomy beyond the M.S. level may qualify for a Doctor of Philosophy degree in physics with specialization in astrophysics. At M.S. level, it is not prerequisite to the Ph.D.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the Program in Applied Mathematical Sciences (see the "Graduate College" section of the Catalogue).

Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress. A graduate student becomes a candidate for an advanced degree in physics or astronomy only after passing a qualifying examination in all principal areas of physics at the level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay advisor then becomes the candidate's general advisor and the chair of the final examination committee. Each candidate for an advanced degree is expected to serve as a graduate teaching assistant for at least one year.

Master of Science in Physics

The M.S. degree in physics is offered either with thesis or with a critical essay. The degree may be a terminal one, or intermediate step toward a Ph.D. degree. The final examination in either case is oral, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College. The program for the M.S. degree with thesis requires 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimum 30 semester hours may be for research (29.99 Research Physics). The program for the M.S. degree with a critical essay requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic, and preparation of a critical essay on that topic. No more than 6 of the minimum 30 semester hours may be for the critical essay (29.229 Individual Critical Study). Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, or engineering.

Candidates for either of the M.S. degree programs must have satisfactorily completed the following courses or their equivalents as an undergraduate in a graduate:
29.115 Intermediate Mechanics 3 s.h.
29.116 Introductory Quantum Mechanics 3 s.h.
29.117 Optics 3 s.h.
29.118 Statistical Physics 3 s.h.
29.128-130 Electricity and Magnetism 6 s.h.
29.132 Advanced Laboratory (two semesters) 4 s.h.
29.171-172 Mathematical Methods of Physics 6 s.h.
29.191 Atomic Physics 3 s.h.

Two additional courses selected from:
29.192 Elementary Particles and Nuclear Physics 3 s.h.
29.193 Introductory Solid State Physics 3 s.h.
29.194 Field Theory 3 s.h.

The student's plan of study should provide for at much advanced work as attitude and previous preparation permit.

Master of Science in Astronomy

The M.S. degree in astronomy is offered either with thesis or with a critical essay. The course requirements are the same as those for the M.S. in physics (see above). Course requirements or their equivalents as an undergraduate or a graduate are:
29.115 Intermediate Mechanics 3 s.h.
29.116 Introductory Quantum Mechanics 3 s.h.
29.117 Optics 3 s.h.
29.119 Statistical Physics 3 s.h.
29.128-130 Electricity and Magnetism 6 s.h.
29.132 Advanced Laboratory 1 s.h.
29.137 Astronomical Laboratory 2 s.h.
29.171-172 Mathematical Methods of Physics 6 s.h.
29.181 Atomic Physics 3 s.h.
29.194 Plasma Physics 3 s.h.

A student who intends to continue for a Ph.D. in physics with an astrophysics specialization should take the following courses as early in the master's program as possible:
29.195 Plasma Physics 3 s.h.
29.232-233 Theoretical Astrophysics I-II 6 s.h.
29.244 Stellar Structure and Evolution 3 s.h.
29.255 Special Topics in Astrophysics 2 s.h.
Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. Two Van computers are available within the department, and the associated facilities of the University’s Computing Center are available for research by students and staff of the department. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine shops for the use of advanced students and the research staff.

Experimental research is conducted in acoustics of musical instruments, astronomy (optical and radio), atomic and molecular physics, elementary particle physics, laser physics, low energy nuclear physics, plasmas physics, and solid state physics. A major experimental space physics program is conducted in the department. Experimental facilities are available for construction of equipment for satellites and spacecraft, for reception of satellite telemetry, and for computerized decoding and analysis of data.

An unusually versatile 6-kW Van de Graaff accelerator, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several experimental plasma devices, including a tandem machine, are used to study confinement, nonlinear wave interactions, and turbulence in low-temperature, steady-state plasmas. A variety of laser spectroscopic and molecular beam studies are carried out at the Iowa Laser Facility. Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Los Alamos National Laboratory, and at other accelerators.

The department is well equipped for research in observational astronomy. The primary optical instrument, a 24-inch reflector with a computer-controlled photometer, is used for stellar, planetary, and cometary studies. Research programs in galactic and extragalactic radioastronomy are carried on using an 18.3-meter parabolic reflector located at the North Liberty Radio Observatory in Iowa City, one of the radio telescopes in the U.S. Very Long Baseline Interferometry Network. Current long-term research activities include studies of extragalactic radio sources and OH masers. Students and faculty also conduct research programs at the Very Large Array, the National Radio Astronomy Observatory, the Goet Einstein Fellow of the National Radio Astronomy, the Arecibo Observatory, and the Infrared Telescope Facility.

Active theoretical research is carried on in astrophysics, atomic, and molecular physics, elementary particle physics, nuclear physics, plasma physics, solid-state physics, and space physics.

Courses

Prerequisites and corequisites are specified as guiding and may be waived by the instructor. Students may not repeat an elementary course for credit or grade points if they already have completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 25.1, 25.2, 25.11-12, 25.14-16, 25.30, and 25.31 are accepted toward the College or Liberal Arts General Education Requirement in the natural sciences.

Physics—Primarily for Undergraduates

25.01 Physics (I) Foundation 4 s.h.
25.02 Physics (II) Foundation 4 s.h.
25.1 Elementary Physics of the Atom 3 s.h.
25.2 General Physics 3 s.h.
25.3 Electricity and Magnetism 3 s.h.
25.4 Mechanics and Heat 3 s.h.
25.5 School Physics 3 s.h.
25.6 Wave Motion 3 s.h.
25.7 Analytical Mechanics 3 s.h.
25.8 Elementary Physics of Electricity, Heat, Light, and Sound 3 s.h.
25.9 General Physics 3 s.h.
25.10 Mechanics 3 s.h.
25.11 Electric and Magnetic Fields 3 s.h.
25.12 Waves and Oscillations 3 s.h.
25.13 General Physics 3 s.h.
25.14 Elementary Physics of Electricity, Heat, Light, and Sound 3 s.h.
25.15 General Physics 3 s.h.
25.16 General Physics 3 s.h.
25.17 General Physics 3 s.h.
25.18 General Physics 3 s.h.
25.19 General Physics 3 s.h.
25.20 General Physics 3 s.h.
25.21 General Physics 3 s.h.
25.22 General Physics 3 s.h.
25.23 General Physics 3 s.h.
25.24 General Physics 3 s.h.
25.25 General Physics 3 s.h.
25.26 General Physics 3 s.h.
25.27 General Physics 3 s.h.
25.28 General Physics 3 s.h.
25.29 General Physics 3 s.h.
25.30 General Physics 3 s.h.
25.31 General Physics 3 s.h.
25.32 General Physics 3 s.h.
25.33 General Physics 3 s.h.
25.34 General Physics 3 s.h.
25.35 General Physics 3 s.h.
25.36 General Physics 3 s.h.
25.37 General Physics 3 s.h.
25.38 General Physics 3 s.h.
25.39 General Physics 3 s.h.
25.40 General Physics 3 s.h.
25.41 General Physics 3 s.h.
25.42 General Physics 3 s.h.
25.43 General Physics 3 s.h.
25.44 General Physics 3 s.h.
Astronomy—Primarily for Undergraduates

25:01 Modern Astronomy 3 cr.
Survey of astronomy, special attention to topics of current interest, such as planetary exploitations, solar systems, galaxies, pulsars, black holes, and cosmology. Discussion laboratory session for astronomical observation and problem solving. Open to freshmen.

25:04 General Astronomy 4 cr.
Descriptive lectures and study of astronomical techniques and all components of solar systems and, north, south, and polar columns, planets and satellites, stars, comets, meteors, and meteorites. Solar activities, weather, auroras, and meteor showers also discussed. Time in observatories and planetarium included. Credit only given for 128:01, 128:02, and 25:04. Prerequisite: at least one year's high school algebras and geometry.

25:02 General Astronom 4 cr.
Structure and properties of stars and stellar systems, stellar evolution, 10-hour semester lecture, radio, X-ray, and infrared observations, external galaxies, and evolution of our own galaxy, the Milky Way. Credit only given for 128:01, which is not prerequisites. May be taken for 2 cr. as a sequel to 25:01. Prerequisites: at least one year each of high school algebra and geometry.

25:06 Reading in Astronomy em.

Astronomy—for Undergraduates and Graduates

25:16 Reading in Astronomy em.

25:19 Introduction to Astrophysics 1 cr.

25:17 Introduction to Astrophysics II 1 cr.

25:12 Astronomical Laboratory 1 cr.
Introduction to techniques and observational strategies of radio and astronomical radio astronomy. Prerequisites: 25:16. May be repeated. Prerequisites: 25:12 and consent of instructor.

Astronomy—Primarily for Graduates

25:29 Theoretical Astrophysics I 3 cr.
Radiative transfer theory of stellar atmospheres and consider topics such as nuclear astrophysics, stellar evolution, and black holes. Credit only given for 25:28. Prerequisites: consent of instructor.

25:28 Theoretical Astrophysics II 3 cr.
Theoretical methods, atomic, nuclear, and gamma-ray radiations. Continuation of 25:29.

25:31 Stellar Structure and Evolution 3 cr.
Structure of stellar interiors, nucleosynthesis in stars and evolution of stars. Prerequisite: consent of instructor.

25:32 Special Topics in Astrophysics 2 cr.
Advanced lecture course in special topics in natural sciences. May be repeated.

25:30 Seminar in Astrophysics 2 cr.
Discussion of current research. Approval of instructor.

25:35 Research in Astrophysics 2 cr.
Research in observational theoretical astrophysics.

Political Science

Chair: John S. Boman
Professors: Joel D. Bostrom, G. Robert Byrnes, Nancy K. Budis, James W. Callahan, Jane Darke, C. Douglass Donahue, Michael S. Lewis-Beck, Arthur H. Miller, Russell M. Rose, Peter C. Shaw,
Associate professors: Douglas E. Madsen, William A. Mau, John S. Neal
Assistant professors: Gary B. Covington, Richard J. Galindez, William B. Houck, Fred J. Mooney, David F. Smolensky

S. 22:01:02 Introduction to Political Science 3 credits
B. S., M.A., Ph.D.

Undergraduate Programs

Bachelor of Arts

Students seeking the B.A. degree with a major in political science must complete 27 semester hours of course work in political science and 12 semester hours in one of these departments: economics, geography, history, journalism and mass communication, philosophy, psychology, sociology, or anthropology. Students seeking the B.A. degree in political science may waive 3 semester hours of the General Education Requirement in social sciences. Courses used to satisfy General Education Requirements may not be used to satisfy the related field requirement.

The course work in political science must include:

30:1 Introduction to American Politics 3 credits
30:2 Introduction to Politics 3 credits
It must also include two of these:

30:9 Introduction to Comparative Politics 3 credits
30:10 Introduction to Political Thought and Political Action 3 credits
30:15 Introduction to Comparative Politics 3 credits
30:20 Introduction to World Politics 3 credits

It must include at least 18 semester hours in political science courses numbered 100 or above. Course 25:102 Washington Internship cannot be included in this total. At least 12 of the required 18 semester hours must be taken in regularly scheduled classroom work. Transfer students must take at least 9 of the 18 semester hours in work in political science at The University of Iowa. Students must maintain at least a 2.9 grade-point average in all political science courses taken at The University of Iowa, and in all courses in the related departmental areas of concentration.

Bachelor of Science

Major requirements for the B.S. in political science are the same as for the B.A., except that two semesters of college-level courses (or the equivalent) in a foreign language are required, and the student must take three semesters of mathematics or statistics. Courses recommended for the mathematics/statistics requirement:

225:125, 225:126 Calculus I, II
225:102 Introduction to Statistical Methods
225:148 Intermediate Statistical Methods

Other courses may be used with the written approval of the political science director of undergraduate studies.

Teaching Major

Undergraduates planning to teach in the social sciences with an emphasis on political science must meet these requirements:

Twenty semester hours of political science, including 30:1 Introduction to American Politics, two of the following introductory courses—30:30, 30:40, 30:50, 30:60, and 11 semester hours of political science courses numbered above 100.

Twelve semester hours of courses in each of two of these areas: American history, world history, economics, geography, and sociology. Twenty semester hours are required for psychology as a related field.

Completion of the sequence of professional education courses leading to certification (see the "College of Education" section of the Catalog)

Honors

The program leading to a B.A. degree with honors is open to a limited number of students with a minimum general grade-point average of 3.2. To graduate with honors, students must maintain at least a 3.2 grade-point average in political science and a general grade-point average of at least 3.2. Honors students must take 30:102 Honors Introduction to Political Inquiry and must complete at least two semesters of work in the 30:182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute one semester of 30:184 Honors Senior Research Project for one of the seminars of the advanced honors seminars. Students must check with their honors advisor before making substitutions. Students interested in seeking a B.A. degree with honors should contact the College of Liberal Arts Honors Program and the departmental honors advisor prior to the beginning of the junior year.

Minor

To receive a minor in political science, students must take 15 semester hours in political science courses, 12 of which must be taken in courses at The University of Iowa numbered 30:100 and above. Credit in courses of 25:102 Washington Internship cannot be applied to the minor.
Graduate Programs

At the graduate level, the department has a program leading to the Doctor of Philosophy degree in political science, which is particularly appropriate for students planning a scholarly academic career. The Master of Arts in Public Affairs is designed for students preparing for careers in government service, public affairs, or civic education teaching in secondary schools of liberal arts and community colleges. The general M.A. degree usually is pursued by persons whose ultimate degree objective is the Ph.D.

Master of Arts in Public Affairs

Although all students in the public affairs program must take the core courses in the schedule below, elective opportunities may make possible several areas of specialization. Students are encouraged to take electives in a single subfield (but not necessarily in a single department). Available areas are international relations, personnel management and labor relations, public policy analysis, and quantitative methods in management. Students planning the elective program should consult with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. Students must complete at least 36 semester hours of course work with at least a 2.0 grade-point average and must pass a written final examination. Although the schedule suggested below implies completion within three years, the program is sufficiently flexible to accommodate students who may require additional time to meet degree requirements.

Fall Semester
33:222 Public Policy Analysis I 3 s.h.
33:228 Introduction to Administrative Computing 1 s.h.
62:311 Research Methods of the Government Sector 5 s.h.
Electives 8 s.h.
Spring Semester
33:226 Administrative Theory and Public Policy 3 s.h.
33:227 Urban Administration 3 s.h.
33:223 Public Policy Analysis II 3 s.h.
Electives 6 s.h.
Summer Session
33:391 Internship in Public Policy and Administration 3 s.h.
33:392 Practicum in Public Policy and Administration 3 s.h.
Elective 3 s.h.
Total 36 s.h.

Master of Arts with Thesis

Except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the "College of Law" section of the catalog), the department usually offers the M.A. only as a preliminary step toward the Ph.D.

Students usually complete the M.A. degree by completing at least 30 semester hours with a grade-point average of at least 3.0, submitting a thesis, and passing a final oral examination. No more than 8 semester hours of credit for thesis preparation will be counted toward the 30-semester-hour minimum requirement for the general M.A. The final oral examination covers both thesis and course work.

Master of Arts without Thesis

If the first-year evaluation committee finds that a student's coursework and research papers provide sufficient evidence of the research and writing skills originally demonstrated in a master's thesis, it may recommend that the student be allowed to proceed with a doctoral program without writing a master's thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.0, and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply where a first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master's program. The committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

All doctoral students must acquire a level of competence in quantitative methods. This requires a thorough grounding in applied mathematical statistics, which is demonstrated by taking 33:351 advanced Research Methods and receiving a grade no lower than B. Any special tools or skills needed for satisfying dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired before taking comprehensive examinations. Students who doubt their ability to meet these requirements should consult with their faculty adviser in the first two years of Ph.D. work.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of graduate work, or in the first examination period following their attainment of 48 hours of graduate credit, whichever comes later. Candidates for the Ph.D. take written examinations in each of three areas:

- American politics and public policy
- Comparative politics
- International politics

Political theory

Before taking the written examinations, candidates must present a written dissertation proposal. They must then defend the proposal in an oral examination, which also may deal with all matters relevant to the written examinations and to the areas they cover.

Ph.D. candidates in political science must acquire at least four semesters of special supervised training in teaching and/or research. This instruction usually is given in association with the student's association as a teaching or research assistant.

A comprehensive statement of departmental requirements to set forth in the Guide to Graduate Study in Political Science. For general examination and degree requirements see the "Graduate College" section of the Catalog.

Facilities

The laboratory for Political Research provides logical and technical support for undergraduate and graduate teaching and research programs undertaken by the Department of Political Science. The laboratory assists faculty members in utilizing quantitative data and the computer for their undergraduate instruction. The assistance is provided to social scientists at The University of Iowa and at 12 other institutions that make up the Iowa Regional Computer Network. The laboratory is an integral part in graduate education in the department and a seminar at every level of advanced study.

The Social Science Data Archive holds more than 450 data collections, and the laboratory is a user contact site for data from the 1979 United States Census. The laboratory also supervises the College of Liberal Arts and Sciences' Computer Terminal Center for the social sciences.

The Comparative Legislative Research Center of the Department of Political Science was established to promote comparative studies of legislative institutions and behavior in a wide variety of political systems. The main activities of the center include bibliographic and archival work, data collection, collaborative research with foreign scholars, training of students in legislative research, conferences and seminars, and publication of research. The center also publishes the Legislative Studies Quarterly.

Courses

33:900 Cooperative Undergraduate Training Agreement 3 s.h.
33:910 Introduction to American Politics 3 s.h.
33:911 Introduction to Comparative Politics 3 s.h.
33:912 Introduction to International Politics and Policy 3 s.h.
33:913 Introduction to Political Science and Political Institutions 3 s.h.
33:914 Introduction to Comparative Political Systems 3 s.h.
33:916 Introduction to International Studies 3 s.h.
undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the world of work, e.g., education, social work, journalism, nursing. Almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is intended for students planning to pursue advanced work in psychology or in a related discipline. It includes requirements for specific courses in statistics and in experimental psychology, as well as other specific requirements in mathematics and natural science. The B.A. program has somewhat fewer specific requirements and requires a more formal emphasis on methodology. Both programs leave ample time for students to combine psychology with another discipline or program. Students who shift to a psychology major after two years of undergraduate work may find they do not have the background for the B.S. program. These students may wish to enrich the B.A. program with courses in statistics and experimental psychology if they intend to pursue graduate work in psychology or in a related field.

Students in either program begin with a general introductory course, followed by one or more methodology courses and electives in several broad areas of psychology: animal learning and cognition, child development, clinical and cognitive. These satisfy the requirements for the B.A. or B.S. degree in psychology automatically satifying the 21 credit hour minimum for the General Education Requirement in social science.

The department maintains excellent facilities and personnel that support teaching and research on human and animal behavior. All faculty members are actively engaged in research and bring to their undergraduate students the excitement that such activity generates. Many opportunities are available for interested and capable students to participate in research projects being carried on in the department. The department has an active undergraduate psychology organization, the Iowa Student Psychology Association, that is open to all interested students. The group sponsors speakers, film, career days, student symposia, etc. There is also a local chapter of Psi Chi, the national undergraduate organization of the American Psychological Association.

Bachelor of Arts

Students must satisfy the general College of Liberal Arts requirements for the B.A. degree and must complete at least 28 semester hours in psychology. At least 15 semester hours of the major must be completed in this department.

The B.A. program must include the following courses, or equivalents: 31.1 Introduction to Psychology; 31.3 General Psychology; 31.43 Evaluating Psychological Research; one elective course from the Five area electives below, with at least two of these four area electives in 100-level courses. The 31.43 requirement may be satisfied by a combination of 31.42 Introduction to Statistics in Psychology and 31.120 Experimental Psychology I, or equivalents. This alternative is strongly recommended to students in the B.A. program who plan to pursue graduate work in psychology or a related area.

Bachelor of Science

Students must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 28 semester hours of credit in psychology. At least 15 semester hours of the major must be completed in this department.

The B.S. program must include the following courses, or equivalents: 31.3 General Psychology or 31.3 Elementary Psychology; 31.42 Introduction to Statistics in Psychology; 31.120 Experimental Psychology I, 31.121 Experimental Psychology II; one elective course from each of the five area groupings given below, with at least four of these area electives in 100-level courses. Candidates for the B.S. degree in psychology are expected to satisfy the General Education Requirement in natural sciences in one of the following ways: one semester of chemistry and one semester of biology; two semesters of chemistry; two semesters of physics; one semester each of chemistry and physics. B.S. majors also must complete at least one semester of calculus. In the case of B.S. students who take at least one pre-calculus mathematics course, students should consult with the advisor concerning specific courses that will satisfy these requirements.

Minor

A minor in psychology is an attractive option to students from a variety of disciplines. At least 12 of the 15 semester hours of psychology courses must be in upper-level courses in this department. This includes all 100-level courses and 31.43. Departmental advisors can help students identify sequences of courses for a minor that appropriately complement the student's major.

Area Electives

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should check the latest version of the brochure, Undergraduate Psychology at Iowa, and the current Schedule of Courses.

Animal Learning and Biospsychology

31.17 Introduction to Comparative Psychology

31.123 Psychology of Learning

31.35 Physiological Psychology and Psychology

31.42 Experimental Psychology I
31.128 Introduction to Behavioral Pharmacology 3 s.h.
31.129 Biological Aspects of Behavior 3 s.h.
31.132 Motivation 3 s.h.
31.135 Principles of Behavioral Analysis 3 s.h.

Child and Developmental Psychology

31.144 Introduction to Child Psychology 3 s.h.
31.130 Development of Children's Social Behavior 3 s.h.
31.144 Cognitive Development of Children 3 s.h.
31.137 Psychological Processes in Development 3 s.h.
31.139 Perceptual Development 3 s.h.
31.148 Individual Differences in Developmental Psychology 3 s.h.
31.164 Behavior Disorders in Children 3 s.h.

Clinical Psychology

31.113 Introduction to Clinical Psychology 3 s.h.
31.115 Personality 3 s.h.
31.161 Schizophrenia 3 s.h.
31.162 Depression and Mania 3 s.h.
31.163 Abnormal Psychology 3 s.h.
31.166 Behavior Disorders in Children 3 s.h.
31.170 Behavior Modification 3 s.h.

Cognitive Psychology

31.116 Introduction to Mental Processes 3 s.h.
31.119 Learning and Motivation in Children 3 s.h.
31.113 Language Processing 3 s.h.
31.127 Memory and Cognition 3 s.h.
31.128 Psychology of Thinking 3 s.h.
31.133 Perception 3 s.h.
31.147 Introduction to Psychological Measurement 3 s.h.
31.155 Human Factors Engineering 3 s.h.

Social Psychology

31.115 Introduction to Social Psychology 3 s.h.
31.163 Development of Children's Social Behavior 3 s.h.
31.306 Attitude Change 3 s.h.
31.307 Environmental Ethics 3 s.h.
31.308 Small Group Process 3 s.h.
31.111 Social Cognition 3 s.h.

*These courses may be counted in either—
but not both—of the areas indicated.

Honors

The department has an active honors program open to majors in both 3.3 and 3.5 grade-point average in psychology courses and at least 3.2 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department's 31.195 Honors Seminar in Psychology during the spring semester of the junior year.

Interested majors should contact the department honors advisor early in the junior year.

Graduate Program

The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for last degree. For students entering without previous graduate work, a four-year plan is recommended. Those entering with previous graduate training require from two to four additional years in this department, depending on the nature of the earlier preparation.

The Ph.D. program has a 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 behavior, familiar with fundamental knowledge about behavioral processes, well trained in the methods and techniques for causal investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society. Prospective applicants should understand that the number of positions appropriate for graduates of this program is limited and that the competition for available openings is fairly intense.

Graduate training is organized in the broad training areas: animal learning and biological psychology, child and developmental psychology, clinical psychology, cognitive psychology, health and behavioral science, industrial and organizational psychology, and social psychology. Each entering student is expected to identify one of these areas as his or her primary area and to consider a program that develops through understanding of the substantive material and methods of investigation central to that specialization. While all students are required in basic laboratory training, all students must meet course requirements in statistics, research methods, testing, and several content areas other than the primary one.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Several joint program have been formulated and others can be developed as interest dictates. A joint program involves selecting course work in two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, aging, organizational and consumer behavior, communications, and neuropsychological training. Preparation in one of these interest areas involves some special advanced seminars within the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy

The Ph.D. degree requires satisfactory completion of at least 27 semester hours of graduate work in psychology, including at least 33 seminar hours in this department. All students must satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the history and/or the philosophy of psychology is strongly encouraged. Students also are expected to take two intensive course works outside the privacy training area to develop a reasonably broad background, the discipline of psychology as a whole. The nature of these requirements and their placement in the graduate program vary somewhat among the training areas and depend on the individual student's background and interests.

During each of the first three semesters, graduate students ordinarily take three courses, e.g., a general core course, a course in life training area, and an outside area elective. Students also become familiar with the literature, research strategies, and special techniques in one or more research areas through engagement in individually supervised research projects. This research participation, which may be with one faculty member all year long or with a different faculty member each semester, is designed to help students develop, by early in the second year, a reasonably detailed plan for the master's research project.

By the end of the second year—certainly very early in the third year—students are repeat 33 seminar hours in this department project and defend the thesis. Advancement to Ph.D. candidacy is based on a faculty-wide review of the student's overall record of performance on the Master's project, progress reports, and in teaching, research, and service activities.

During the third year students continue selected course work in the training and internship, and develop a proposal for the dissertation research, and prepare for the comprehensive examination. This written examination assesses the student's mastery of the specialty and related areas and ordinarily is given at the beginning of the fourth year. The fourth year is devoted primarily to advanced seminars and to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students offer an oral defense of the dissertation and are expected to review the dissertation work to broaden issues in the discipline of psychology.

Master of Arts with Thesis

As indicated above, the department does not offer a thesis program. To the Master of Arts degree with thesis is a requirement for all students preparing for the Ph.D. This degree requires satisfactory completion of at least 33 semester hours of graduate work in psychology with at least 15 seminar hours in this department. The course work must include a statistics
Master of Arts without Thesis

The Master of Arts degree without thesis is an option available to those few students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 36 semester hours of graduate credit in psychology, including at least 24 semester hours in this department. The course work must include a statistics sequence, a learning course, and at least one course outside the primary area. Students also must pass successfully on a written examination covering the area of specialization.

Graduate Training Areas

Animal Learning and Biophysics

The focus of the program in animal learning and biophysics is on the analysis of learning and motivation, primarily in nonhuman subjects, through the application of behavioral and biophysical principles. Special faculty strengths are in classical and operant conditioning, comparative psychology, motivation, neuropharmacology, neuroendocrinology, and experimental physiology. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurophysiology, histology, and biochemical assay. Faculty members in the animal learning and biophysics area interact extensively with colleagues from a number of basic science departments in the College of Medicine. These collaborative activities provide excellent research and training opportunities and lend themselves to extending interdisciplinary areas such as behavioral medicine and neurobehavio ral science.

Child Developmental Psychology

Students in the child and developmental psychology program are exposed to a broad understanding of children's development in the social, cognitive, and perceptual domains. As the training program proceeds, students may focus their preparation on any of these broad areas, or may choose to develop more particular specialization in areas such as language, the development of sensorimotor, memory, the development of social judgment, self-concept development, and abnormal development. Most of these specializations require substantial preparation in at least one of the other training areas in the department. The program does not have a specific life-span focus, but several faculty members are involved in research on aspects of aging and can provide some supervision for students interested in this area. Faculty members have close contacts with colleagues from the Department of Gerontology and the College of Medicine, and the Department of Pediatrics; these relationships can be useful to students who wish to gain additional experience in clinical aspects of communication or of behavioral medicine.

Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the objective investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practical experience in the Carl E. Seashore Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in areas such as psychophysiology, personality, behavioral, cognitive, physiological, affective, and/or behavioral and cognitive therapies. Students are expected to complete courses in statistics, epidemiology, and an overview of the fundamentals of psychopathology. The department collaborates with other departments in the College of Medicine, and in non-medical departments, to provide a comprehensive education in psychology.

Students in the clinical program have the opportunity to work closely with faculty members in these areas and to gain experience in the diagnosis and treatment of commonly encountered psychiatric disorders. The clinical program is designed to prepare students for independent practice in psychology, with an emphasis on the assessment and treatment of psychiatric disorders. Students in the clinical program are expected to complete a supervised internship in a hospital or clinic setting.

Cognitive Psychology

Students affiliated with the cognitive psychology program concentration are exposed to a broad understanding of the cognitive processes involved in language, memory, and problem solving in children. Faculty interests include cognitive development, neuropsychology, mathematical psychology, psychophysiological and signal detection theory, cognitive effects of drugs, human judgment and decision making, information processing, and psychoacoustics.

Faculty members in the cognitive area are engaged in research in a variety of areas, including brain-behavior, communications, aging, and organizational and consumer behavior. Collaborative research is under way with faculty members from the College of Business Administration, the Health Services Research Center, and from several departments including Neuropsychology, Industrial and Management Engineering, Speech Pathology and Audiology, and Anthropology.

Health and Behavioral Sciences

The health and behavioral science program is designed to prepare students to engage in academic research pertinent to the psychophysiological and behavioral components of health disorders. The program emphasizes study in the areas of methodology and statistics, the physiological bases of behavior such as neurophysiology, psychophysiology, pain, sleep, and circadian rhythms, and behavioral and psychological effects of illness stressors. Students are involved in research throughout their tenure in the program. Faculty and students participate in a weekly seminar on research strategies and advances in health and behavioral science. To broaden research perspective and skills prior to beginning the dissertation, advanced students also train in an affiliated laboratory (research assistantship). Students in the health and behavioral science program may acquire specialized training for research and teaching in broad areas such as cardiovascular psychophysiology and hypertension, animal models of disease, cancer pain, internal states of language and cognitive disorders, inference making and communication regarding health status, and the analysis of illness behavior. Collaborative research is maintained with faculty members in various departments of the College of Medicine, currently including the departments of Anatomy, Anesthesiology, Internal Medicine, Neurology, Obstetrics and Gynecology, Otolaryngology-head and neck surgery, Pediatrics, Pharmacology, Physiology, Speech Pathology and Audiology, and Surgery.

Cognitive Psychology

Students affiliated with the cognitive psychology program are exposed to a broad understanding of the cognitive processes involved in language, memory, and problem solving in children. Faculty interests include cognitive development, neuropsychology, mathematical psychology, psychophysiological and signal detection theory, cognitive effects of drugs, human judgment and decision making, information processing, and psychoacoustics.

Faculty members in the cognitive area are engaged in research in a variety of areas, including brain-behavior, communications, aging, and organizational and consumer behavior. Collaborative research is under way with faculty members from the College of Business Administration, the Health Services Research Center, and from several departments including Neuropsychology, Industrial and Management Engineering, Speech Pathology and Audiology, and Anthropology.
Social Psychology
The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of five sub-areas: social identity, social cognition, social influence, social relations, and social psychology. A student who has completed all of the requirements and has demonstrated the necessary research skills is granted a Ph.D. degree in psychology.

Admission
The graduate program in psychology is designed to train students for the Ph.D. degree. Applicants are required to have at least a B.S. or B.A. in psychology, or another discipline that includes a strong background in the social sciences. At least one year, or the equivalent, of college-level mathematics is required. The general Graduate Record Examination (GRE) is required, as are letters of recommendation from at least three different sources. The Graduate Record Examination (GRE) is required, as are letters of recommendation from at least three different sources. The Graduate Record Examination (GRE) is required, as are letters of recommendation from at least three different sources. The Graduate Record Examination (GRE) is required, as are letters of recommendation from at least three different sources.

The deadline for applications is January 1. For students who are admitted to the Ph.D. degree, the Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application.

Financial Aid
All students admitted to the graduate training program in psychology will receive financial aid. The amount of financial aid will be determined by the student's academic performance and financial need. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application.

Faculty
The faculty consists of full-time, part-time, and visiting faculty members. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application.

Facilities
The department's facilities for graduate training and research are among the finest in the country. The Kernan W. Sprung Laboratory of Psychology and Adjoining Space in the Seashore Hall include a variety of laboratories, including a separate consulting laboratory. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application. The Graduate Record Examination (GRE) General Test must be taken by March 1, with the results included in the application.
Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and non-treatment settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:

104.120 Orientation to Rehabilitation Settings
104.121 Orientation to Special Populations
104.125 Role of Therapeutic Recreation in Rehabilitation

Three courses selected with advisor

Leisure Studies

The leisure studies concentration is designed for students preparing for graduate work, or who have a major interest in leisure research or leisure as a contemporary social issue, or an interest in diverse fields of recreation, such as outdoor or industrial recreation. It is the most flexible of all concentrations, and makes the maximum use of courses outside of the Program in Recreation Education. It is also ideal for students wishing to obtain a minor in recreation education.

Commercial/Industrial

The commercial/industrial track is the newest emphasis area in recreation specialization. Students seeking careers in business, with special emphasis on such areas as health spas and clubs, sales of recreation goods or services, or recreation-related businesses, will find this specialization well-suited to their needs. Those interested in industrial recreation, the provision of recreational services and opportunities for employees by these employers, also will find this specialization appropriate. Students are urged to select a combination of general electives in business, fitness, and health-related areas.

Courses required for this area of concentration are:

104.136 Health Promotion in Corporate, Hospital, and Private Settings
104.139 Managing the Commercial Recreation Enterprise

Three courses selected with advisor

Internship Opportunities

The recreation education program places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend state and national professional conferences, and every class in the professional core included lectures by working professionals, as well as opportunities for field experience related to course work.

The practical experiene is climaxed by a professional internship for a full semester in an agency and setting of the student's selection. The internship is designed to lead to professional placement. More than 350 local, state, and national departments, agencies, and services provide fieldwork and internship opportunities for students in the program.

Honors

Admission to the honors program in recreation education requires a formal application, completion of at least 32 semester hours of course work at the University, completion of at least 9 of the 32 semester hours of required major course work, and a grade-point average meeting the minimum requirement of the College of Liberal Arts Honors Program.

To graduate with honors in recreation education, the student must successfully complete 6 semester hours of honors work. With the permission of the chair of his or her honors committee, the student may take 3 semester hours of honors work in another department.

Minor

Students wishing to minor in recreation education may do so by meeting the following criteria:

Students must complete a minimum of 15 semester hours in the recreation education curriculum, 12 of which must be taken in advanced (over 100 level) courses at The University of Iowa, and will be determined by student interest and the approval of the undergraduate coordinator.

Graduate Program

The master's program is designed to prepare students for supervisory, administrative, and teaching positions in recreation systems and institutions. It offers two areas of specialization: public, private, and commercial recreation and therapeutic recreation administration. It may be taken with thesis (33 semester hours) or without a thesis (36 semester hours). An introduction to recreation and research is provided through 104.101 Leisure Research or equivalent preparation of a thesis or research report. The research will result in a contribution to knowledge, a review of a report, or other scholarly work.

Public, Private, and Commercial Recreation

This area focuses on the development and administration of recreational programs in settings such as municipal departments, schools, volunteer agencies, churches, the armed forces, state and federal agencies, industries, private organizations, etc. The emphasis within these programs may be on special populations, such as the elderly, city and poverty groups, the ill, children, and youth; or upon the meaning of leisure as a social phenomenon, with a study of the historical, philosophical, and social issues of leisure. Public administration and urban social planning are particular aspects of this area. To provide this emphasis for special population groups, the program draws heavily from other disciplines, such as public administration, social work, urban and regional planning, sociology, geography, and psychology.

Therapeutic Recreation Administration

Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aging in both institutional and community settings. The program is directed toward understanding recreation's role in a comprehensive rehabilitation process, including both clinical and community facets, and thus prepares the student to work with a broad range of disability areas either in a medical setting or in the community. Through the role of related area courses, strengths in specific disability areas may be developed.

It is recommended that the student have 10 to 12 semester hours of undergraduate credit in courses such as abnormal psychology, psychopathology, adjustment, and the mentally retarded, and aging. The student also should have skills in at least two program fields.

Financial Aid

Assistance for doctoral candidates is available in the form of graduate assistantships, research assistantships, teaching assistantships, and post-master's assistantships. The student may obtain assistance through the department.

Facilities

Students majoring in recreation education have opportunities to gain experience and/or leisure education through a variety of leisure opportunities. The University of Iowa has facilities, such as our own Athletic and Recreation Center, which is open to the public. Students also have access to the University's many recreation facilities, including the Recreation Center, the Aquatic Center, and the University Recreation Center. Students also have access to many local recreation facilities, including the City of Iowa City Recreation Centers, the University of Iowa Division of Recreational Services, Iowa City Parks and Recreation Department, the Midwest University, various retirement and convalescent homes, and the Coralville Department of Parks and Recreation.

Courses

Primarily for Undergraduates

104-090 Cooperative Education Internship 2 a.b.
104-099 Foundations of Recreation 2 a.b.
200-099 Community and recreation foundations and development in leisure and recreation; function and
The school is not a theological seminary; it has an academic rather than vocational orientation. The undergraduate major in religion provides a foundation for advanced academic work or for study at a theological seminary. The school’s graduate program provides preparation for the study and teaching of religion as an academic discipline.

Undergraduate Program

Undergraduate students seeking the Bachelor of Arts in religion elect at least 27 semester hours of course work in religion. At least 12 of the 27 semester hours must fall under one of the areas of concentration listed below. A minimum of three courses in the area of concentration must be at the 100 level, and at least 12 of the semester hours must be outside the area of concentration. A minimum of one course outside the area of concentration must be at the 100 level. Students also must fulfill the requirements of the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). Three semester hours of the General Education Requirements in the humanities are waived for students majoring in religion.

The areas of concentration are Jewish and Christian scriptures; history of Christianity; Western theology and ethics; and Asian religions.

Honors

Religion majors eligible for the College of Liberal Arts Honors Program earn a degree with honors through satisfactory completion of an honors essay during the senior year.

Graduate Programs

The School of Religion prepares a select number of graduate students to become specialists in the study and teaching of religion.

Master of Arts

There are two tracks toward the M.A. in religion. Students choosing the thesis track must earn a minimum of 25 semester hours in the School of Religion. These include 6 semester hours in 32:200 Methods and Theories in the Study of Religion I; 4 semester hours in 32:200 Methods and Theories in the Study of Religion II; 9 semester hours in 32:200 Methods and Theories in the Study of Religion III; and 6 semester hours in 32:200 Methods and Theories in the Study of Religion IV. Students in the thesis program take at least one seminar in this area, and may count the thesis for 6 of the semester hours required. Students in the non-thesis program take at least two seminars.

A maximum of 6 semester hours of graduate work in religion may be transferred to the program from another accredited graduate or professional school. The student’s committee must approve a program of study including course work and requirements for languages and other research tools.

All students are required to take a written M.A. examination, which tests the student’s competence in the area of concentration.

Master of Arts in Religion and Health

Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University of Iowa Hospitals and Clinics provide the setting for research and training in this program. Candidates for the Master of Arts in religion and health must complete 30 semester hours of course work. Final examination hours may be earned in thesis research. A maximum of 6 semester hours may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and personality, and in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. Students ordinarily take the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student’s advisory committee.

In addition to the general requirements for admission outlined below, the school generally requires an on-campus interview of applicants for the M.A. program in religion and health; however, the interview may be conducted off-campus by an accredited member of the Association for Clinical Pastoral Education.

Doctor of Philosophy

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work, of which 9 semester hours must be taken outside the School of Religion. A minimum of 12 semester hours is allowed for the dissertation.

Students qualify for the doctoral program by completing the following:

32:200 Methods and Theories in the Study of Religion I; a seminar or paper, preseminated, in the area of the student’s proposed concentration; the completion of a substantial seminar paper that displays knowledge of appropriate methodology in the study of religion; and a thorough revision of the paper in light of criticism received in the seminar; the paper must then be submitted to the area faculty, who will evaluate the student’s paper and course work to date.

Doctoral students must submit to the faculty in the area of concentration a program of study that includes course work and language and research tools in preparation for the oral and written comprehensive examinations.

Doctoral candidates also must pass an oral examination on the dissertation. More detailed information on degree requirements and graduate study policies of the School of Religion is provided in Information for Graduate Students, which is available to all applicants and is regularly updated. Inquires about any of the programs may be made to the director of the school.

Financial Aid

The School of Religion has available several types of departmental financial aid for graduate students: a teaching assistantship, teaching assistantship, and research assistantship. The department also may arrange graduate assistantships for students who have demonstrated excellence in religious studies. The Gilmore Scholarship has been established for students interested in the relationship of religion and culture, especially the visual arts. Awards are made annually on a competitive basis. First-year students ordinarily are appointed only as research assistants.

Admission

Applications for admission to the graduate study must include the following:

A combined verbal and quantitative score of 950 on the Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT), or a score of 1,100 on the GRE, or the Graduate Management Admissions Test (GMAT) for admission to the Ph.D. program. Three letters of recommendation and the submission of a significant writing sample also are required.

Resources

In addition to Greek and Latin modern European languages, the University offers courses in Japanese, Chinese, Sanskrit, and Pali. The School of Religion offers Hebrew, Greek, and other Semitic and Hamitic languages. The University of Iowa Hospitals and Clinics provide clinical opportunities for students in the M.A. program in religion and health. Individual courses on gender, sexuality, and medical ethics also utilize hospital personnel and facilities.
32.146 Christian Ethics
2.5 a. Special focus on modern theories and academic surveys of the ethical theories, according to their logic and dynamics of Christian ethics.

32.151 History of Christian Ethics
2.5 a. History of Christian moral and ethical thought, tracing its development from Old Testament to contemporary times.

32.227 Problems of Christian Ethics
2.5 a. Theological theme observed for Christian ethics in applications to problems of modern, political, economic, personal, social relations, war, and peace.

32.228 Introduction to Biblical Ethics
2.5 a. Biblical dimensions of modern life, with particular emphasis on the ethical implications of Christian commandments.

32.229 Religion and the Ordeal in Antiquity
2.5 a. Investigates the role of ordeal in society, including the use of religious ceremonies in the early religions of Greece and Rome, the use of trials by ordeal in the Christian period, the ordeal of guilt, or divine mercy.

32.245 Anthropology of Religion
2.5 a. Anthropology of the role of religion in human social and cultural contexts.

32.246 Readings in Japanese Religious Texts

32.247 Mythology of Religion
2.5 a. Mythology of the role of mythology in religion.

32.249 Religion in India
2.5 a. Indian religions and the study of Indian spirituality.

32.250 Indian Devotional Literature in Translation
2.5 a. Seminar on the translation.

32.271 Indian Religious Texts
2.5 a. A general introduction to the philosophy and religious texts of India, including the Vedas, Upanishads, and the Mahabharata.

32.272 Readings in Swami Vivekananda Texts
2.5 a. The role of Swami Vivekananda in the modern religious revival in India.

32.273 Presenting Mythology and Mythological Texts: In an Original Order
2.5 a. An examination of the importance and evolution of mythological texts.

32.276 Texts and Traditions of the Vedas
2.5 a. Seminar for courses in the study of Vedas.

32.277 Chinese Religious Texts: Writings of Confucius
2.5 a. Critical study of the works of Confucius and the role of Confucianism in Chinese history.

32.278 The Literature of Tantra
2.5 a. The role of Tantra in the development of Hindu philosophy and practice.

32.279 Buddhism in South Asia
2.5 a. The role of Buddhism in the development of South Asian religions.

32.280 Buddhism in South Asia
2.5 a. Historical developments of Buddhism in South Asia.

32.281 Religion in Japan
2.5 a. An exploration of modern Japanese spirituality.

32.282 Religion in Korea
2.5 a. The role of Korean spirituality in modern society.

32.283 Religion in China
2.5 a. Historical developments of Chinese spirituality.

32.284 Judaism and Islam
2.5 a. The study of Judaism and Islam in modern society.

32.285 Judaism and Islam in Translation
2.5 a. An exploration of modern translations of Jewish and Islamic texts.

32.286 Judaism and Islam in Translation
2.5 a. Seminar on the translation of Jewish and Islamic texts.

32.287 Judaism and Islam in Translation
2.5 a. An exploration of Jewish and Islamic spirituality.

32.288 Judaism and Islam in Translation
2.5 a. Seminar on the translation of Jewish and Islamic texts.

32.289 Judaism and Islam in Translation
2.5 a. Seminar on the translation of Jewish and Islamic texts.

32.290 Judaism and Islam in Translation
2.5 a. Seminar on the translation of Jewish and Islamic texts.
Rhetoric

Chair: Douglas M. Trank
Professor: Margaret R. McAlister, Dominick J. Ochs
Associate Professors: Richard L. Hsu, Bernard B. Moller
Associate Professors: William C. Clark, Leo Kelly, Gene M. Niblo, Douglas M. Trank
Assistant Professors: Nancy A. Berry, Linda L. Snow, Nancy Jones, Joe Martinez, Dennis M. Kees, Elizabeth Thomson, Gregory J. Sheppard

The Rhetoric Program offers students direct opportunities, through oral and written communication, to evaluate their experiences and to explore and formulate possibilities for personal and intellectual growth.

Responsibly using various sources of information and investigating, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of other writers and speakers are integral functions of rhetoric courses. The primary responsibility of rhetoric instructors, however, is to help students clarify their own thinking and improve their own communication.

Satisfactory proficiency in rhetoric is a requirement for baccalaureate graduation from the College of liberal Arts (see the "College of Liberal Arts" section of the Catalog).

The Rhetoric Program's reading and writing labs are available to all University students on a voluntary basis (see "Student Life at Iowa" section of the Catalog).

Courses

416 Rhetoric 4.5

Audience and the practical writing, reading, and critical thinking experience. Prerequisite: 415; also offered in 416J.

416J Rhetoric 4.5

Audience and the practical writing, reading, and critical thinking experience. Prerequisite: 415; also offered in 416.

4177 Readings in Classical Rhetoric

May be repeated.

4187 Readings in Humanistic Rhetoric

May be repeated.

4197 Readings in Religious Rhetoric

May be repeated.

4207 Readings in English Rhetoric

May be repeated.

4217 Readings in American Rhetoric

May be repeated.

4227 Readings in the Methodology and History of Rhetoric

May be repeated.

4237 Readings in Rhetoric and Personality

May be repeated.

4247 Individual Study: Rhetoric

May be repeated.

4257 Thesis

May be repeated.

Undergraduate Program

Students looking toward the Bachelor of Arts degree in Russian must meet the general College of Liberal Arts degree requirements (see the "College of Liberal Arts" section of the Catalog) and are required to complete 28 semester hours in advanced Russian courses. Required courses are:

411 Russian Conversation 3.0

413 Russian Composition 3.0

413-415 Russian Reading and Writing 2.0

415 Russian Civilization 3.0

416 Russian Culture 3.0

417 Russian Civilization 3.0

418 Russian Civilization 3.0

419 Russian Civilization 3.0

420 Russian Civilization 3.0

421 Russian Civilization 3.0

422 Russian Civilization 3.0

Students majoring in Russian are urged to choose electives in economics, geography, history or political science. This program leads to a Bachelor of Arts degree. We assume that the student has had serious study in the Russian language and culture before entering the program.

The Teaching Staff for the Russian Language

Chair: Vladimir G. L. D. Inzko

Professor: Norman Lassnegg

Associate Professor: Richard Fortson

Assistant Professor: Laura A. W. Golovin

Assistant Professor: Vadim Koval

Assistant Professor: William J. Callahan

Assistant Professor: Nicholas Bagby

Degrees offered: B.A., M.A.

The purpose of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. It is an important secondary objective of the program to provide students with an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is seldom an end in itself but rather a complement to some other vocation. Accordingly, the department encourages all of its students to pursue a joint major and to develop their interests in related or complementary fields.

With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business.

Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, international relations, or another profession.

In addition to preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanities disciplines, Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools. A number of governmental agencies annually interview job candidates who have advanced training in Russian; these agencies give preference to applicants who strongly command language proficiency with well-rounded background in area studies. Students who develop an excursion facility with the language may pursue careers in literary and technical translation and interpretation.
Financial Aid

Aid is available to graduate students in the form of tuition scholarships, University fellowships, and teaching and research assistantships. It is awarded annually on a competitive basis. Teaching assistantships are not usually awarded to first-year students, though exceptions occasionally are made on the basis of advanced language skills. Fellowships are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Summer and Study Abroad Programs

The department strongly encourages undergraduate and graduate students to participate in intensive programs of language study both in the United States and in the Soviet Union. In recent years an increasing number of students have studied in summer-, semester-, and academic year-programs at Leningrad State University under the auspices of the Council on International Educational Exchanges, as well as in the similar American Council of Russian programs at the Pushkinsky Institute in Moscow. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities. Inquiries should be directed to the Russian department office.

Course Work for Nonmajors

The department offers a special, one-quarter requirement program for Children (41:155/106) designed primarily for students who wish to develop a reading proficiency in Russian for research purposes in the natural, physical, social, and military sciences. The sequence is open to students in the humanities as well. The course 41:107 Readings in the Soviet Union is designed especially for students who wish to develop a reading proficiency geared to the daily and periodical press. A number of other classes are open to all University students and are offered in English. These include survey courses in Russian Soviet literature, culture and civilization, and a monograph course on Tolstoy and Dostoevsky.

Special Activities

Russian Circle is a student organization open to both undergraduates and graduates; it meets regularly for informal and planned social and educational activities and provides students with a valuable opportunity to develop conversational skills and to share experiences with other members of the University community. Participation in the Foreign Language House in South Quad and the Residence Hall is encouraged by the staff and serves as a focal point for many Circle functions, including weekly meals with faculty and guest speakers. A number of outstanding students are indemnated annually into Yablok Ylun, the National Slavic Honor Society, and honored at a commemorative dinner.

Language Media Center

The University's Language Media Center provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and short wave radios, tape and cassette recorders, record players, soundproof recording rooms, drill rooms, and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings are also available.

Courses

For Undergraduates and Graduates

41:105 Russian I 6 cr.
41:106 Russian II 6 cr.
31:205 Intermediate Russian 4 cr.
31:206 Advanced Russian 4 cr.
31:210 Introduction to Consonantal Russian 3 cr.
41:305 Intermediate Conversational Russian 3 cr.
41:306 Beginning Conversational Russian Workshop 3 cr.
41:307 Readings in the Soviet Union 3 cr.
41:308 Reading and Literature Workshop 3 cr.
41:309 Advanced Conversational Russian 3 cr.
41:310 Beginning Russian I 3 cr.
41:311 Beginning Russian II 3 cr.
41:312 Reading and Literature II 3 cr.
41:313 Reading and Literature III 3 cr.
Science Education

Coordinator: Edward L. Prazan

Degrees offered: B.R., B.S., M.A.T., M.S., Ed.S., Ph.D.

Science education is concerned with the interface between science and society. The academic programs in science education include 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.

Undergraduate Programs

The undergraduate program in science education represents a trans-disciplinary major in science for all students while providing an appropriate option for students interested in education as it pertains to science teaching, medical professionals, allied health fields, or areas such as scientific journalism and law.

The science education major is not intended to prepare students for direct study in one area of science. When graduates of the Science Education Program elect to pursue graduate studies in a single area of science, it is often necessary for them to complete additional courses in that discipline prior to admission to the Graduate College.

All of the emphasis areas in science education have the following characteristics in common:

- Depth in a general area of science, equivalent to three or four years of study;
- Preparation in a second area of pure science, equivalent to two years or four semesters of sequential study;
- Introduction to two other fields of science;
- A specified proficiency in mathematics as a tool of science (more mathematics is required for the physical science emphasis than the biological one);
- A view of science from a historical, philosophical, and sociocultural perspective;
- Experience with the application of scientific knowledge in a technological sense.

The five fields of emphasis offered in science education are as follows:

- Biology Emphasis
  - 2. Introduction to Botany
    - 3. Plants and Animal Biology
  - Electives in botany, microbiology, or zoology, including work in genetics, ecology, and physiology
  - 4. Introduction to Principles of Chemistry I
  - 5. Principles of Chemistry Lab I
  - 6.12 Organic Chemistry I
  - 7.13 Chemistry Electives
  - 8.13 Principles of Physical Geography
  - 9.13 Principles of Historical Geography
  - 10.13 College Physics
  - 11.13 Mathematics course at a level of 220 or 221 or higher
  - 12.13 Social and Educational Applications of Biological Sciences
  - 13.13 Application of Science

- All approved course chosen with the advisee's assistance; a wide variety of transfer courses from areas such as engineering, agriculture, and technical schools will satisfy this requirement.

- History/Philosophy/Sociology of Science
  - 9.126 Meaning of Science
  - 9.130 Science in Historical Perspective
  - At least 25 semester hours of the biology emphasis must be earned in 100-level courses.

- Environmental Studies Emphasis
  - 1. Introduction to Botany
  - 2.11 Principles of Chemistry I
  - 2.12 Principles of Chemistry Lab I
  - 2.13 Organic Chemistry I
  - 2.14 Principles of Physical Geography
  - 2.15 Principles of Historical Geography
  - 2.16 Population and Community Ecology
  - 2.17 Electives in biology, environmental engineering, and environmental health

- Encourage the use of captions, italics, or other formatting to improve readability.
97.140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Electives in astronomy, geology, physical geography, and meteorology 4 s.h.

Applications of Science
One approved course chosen with the advisor’s assistance: a wide variety of transfer courses from applied areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97.128 Meaning of Science 2-3 s.h.
97.129 Science in Historical Perspective 1-3 s.h.
At least 25 semester hours of the environmental studies must be earned in 100-level courses.

Earth Science Emphasis
123 Principles of Physical Geology 2 s.h.
124 Intermediate Physical Geology 2 s.h.
125 Introduction to Geology 2 s.h.
124B Intermediate Physical Geology 2 s.h.

Physics Emphasis
29.11-12 College Physics 8 s.h.
or
29.11-18 Introductory Physics I-II 8 s.h.
29.12 Introductory Physics II Physics electives 8 s.h.
29.26-36 Engineering Calculus I-II 8 s.h.
4.13-14 Principles of Chemistry I-II 6 s.h.
5.13-14 Principles of Chemistry I-I 6 s.h.
97.102 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.

Application of Science
At least one approved course chosen with the advisor’s assistance: a wide variety of transfer courses from applied areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97.129 Meaning of Science 2-3 s.h.
97.130 Science in Historical Perspective 2-3 s.h.
At least 25 semester hours of the physics emphasis must be earned in 100-level courses.

Chemistry Emphasis
4.13-14 Principles of Chemistry I-II 6 s.h.
4.16 Principles of Chemistry Lab I 2 s.h.
4.121 Organic Chemistry I 3 s.h.
4.131 Physical Chemistry I 3 s.h.
4.141 Organic Chemistry Laboratory 2 s.h.
Chemistry electives 6 s.h.
29.11-12 College Physics 8 s.h.
Physics electives with the consent of the instructor 8 s.h.
29.26-36 Engineering Calculus I-II 8 s.h.
97.106 Societal and Educational Applications of Chemical Concepts 3 s.h.

Applications of Chemical Concepts 3 s.h.

Application of Science
One approved course chosen with the advisor’s assistance: a wide variety of transfer courses from applied areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97.128 Meaning of Science 2-3 s.h.
97.130 Science in Historical Perspective 2-3 s.h.
At least 25 semester hours of the chemistry emphasis must be earned in 100-level courses.

Education Course Work Required for Teacher Certification
To qualify for a secondary teaching certificate with endorsement to teach science, students must complete all College of Liberal Arts General Education Requirements, the requirements for a science education major, and the following professional education courses:
75.75 Educational Psychology and Measurement 3 s.h.
75.81 Introduction to Teaching English and Speech 2 s.h.
97.151 Science Methods I: Individualizing/instruction in Science 2 s.h.
(8 s.h. of 109-114) 3 s.h.
75.100 Issues in Education 2 s.h.

75.191 Observation and Laboratory Practice in the Secondary School (taken with 75.195) 3 s.h.
75.192 Science Methods II: Resources and Teaching Strategies (taken with 1 s.h. of 75.196) 2 s.h.
75.190 Individual Projects in Laboratory Practice (taken with 2 s.h. of 75.192) 1 s.h.
75.197 Seminar: Curriculum and Student Teaching 2 s.h.
75.198 Indexes, Procedures in Laboratory Practice 2 s.h.
75.191 Observation and Laboratory Practice in the Secondary School (taken with 3 s.h. of 75.199 and 4 s.h. of 75.198) 3 s.h.
75.190 Observation and Laboratory Practice in the Secondary School (taken with 2 s.h. of 75.190 and 3 s.h. of 75.91) 1 s.h.
75.02 Introduction to Microcomputing for Teachers 1 s.h.
75.707 Human Relations for the Classroom Teacher 3 s.h.

Minors in Science Teaching
Six science teaching minors are available for persons with teaching majors in other academic areas. All require 31 semester hours of credit.
Students who wish to pursue a science teaching minor and to qualify for University of Arizona recognition for teaching certification should consult a faculty member in Science Education. All science teaching minors must include:
75.151 Science Methods I: Individualizing/instruction in Science 2 s.h.
75.152 Science Methods II: Resources and Teaching Strategies 2 s.h.
75.191 Observation and Laboratory Practice in the Secondary School 3 s.h.
97.128 Meaning of Science 2 s.h.
97.130 Science in Historical Perspective 2 s.h.
Other basic requirements:

Biology
2.1 Introduction to Botany 4 s.h.
37.1 Principles of Animal Biology 5 s.h.
97.106 Societal and Educational Applications of Biological Concepts 1 s.h.
Botany and zoology electives 9 s.h.

Chemistry
4.13-14 Principles of Chemistry I-II 6 s.h.
4.16 Principles of Chemistry Lab I 2 s.h.
97.106 Societal and Educational Applications of Chemical Concepts 1 s.h.
Chemistry electives 16 s.h.
Physics
29.11-12 College Physics 8 s.h.
57.105 Societal and Educational Applications of Selected Concepts of Physics 4 s.h.
62.011 College Physics 4 s.h.
62.012 Principles of Physical Geography 2 s.h.
62.013 Principles of Historical Geography 3 s.h.
62.014 Principles of Physical Geography 3 s.h.
82.011 College Physics 4 s.h.
82.012 Applications elective 3 s.h.

General Science I
2.1 Introduction to Botany 4 s.h.
29.111 General Astronomy 4 s.h.
12.9 Principles of Physical Geography or 12.4 Principles of Historical Geography 2 s.h.
62.115 Principles of Chemistry I 3 s.h.
12.11 Introduction to Biology 4 s.h.
62.115 Principles of Chemistry I 3 s.h.
62.011 College Physics 4 s.h.
62.012 Applications elective 3 s.h.

General Science II (Environmental Studies Emphasis)
2.1 Introduction to Botany 4 s.h.
37.3 Principles of Animal Biology 5 s.h.
37.132 Population and Community Ecology 3 s.h.
62.115 Principles of Chemistry I 3 s.h.
Electives in Environmental Engineering 3 s.h.
57.140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Earth Science
12.3 Principles of Physical Geography 3 s.h.
12.4 Principles of Historical Geography 2 s.h.
29.601 General Geology 4 s.h.
57.102 Societal and Educational Applications of Earth Science Concepts and Topics 10 s.h.

Special Rules
Since the Science Education Program involves many students preparing for a variety of professions and graduate areas, many faculty advisers, and several colleges and departments, some special rules and regulations apply to science education students. They include the following.
At least 10 semester hours of graded credit in science must be earned at The University of Iowa.
Transfer students using any of the joint programs must complete their last 30 semester hours in residence at the College of Liberal Arts at The University of Iowa in order to be eligible for the B.A. or B.S. degree one year later.
Science education majors should meet their language requirement with German, French, or Russian; an academic advisor may approve the use of another language if circumstances make such a choice desirable; letters approving other languages are filed with the student's records in the Registrar's Office.

No science core courses numbered "11" or credit from the CLEP Natural Science General Examination may be used toward the major in science education.
Science courses taken in other colleges of the University (for example, colleges of Engineering and Medicine) will not be accepted in lieu of the required course work for the major unless one of the science departments of the College of Liberal Arts certifies in writing to the Registrar's Office that such a course is equivalent to the one offered in that department.
Courses used for the major may not be taken pass-fail; grades from all courses used for the science education major will be 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 numerous 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 on.

Iowa-SSST
Iowa-SSST is a special program for talented secondary school students who register for credit as undergraduate students. The program includes research participation, enrichment courses, and environmental field experiences.

Iowa-UPSTEP
Iowa-UPSTEP is a continuing program for up to 40 graduate students interested in exploring science teaching as a career option. Students register for program seminars and varied practical experience. In addition to activities with youth, seminars, and regular courses, students are involved in excursions, social activities, and special action projects.

Graduate Programs
The Science Education Program offers graduate studies leading to the Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy.

The M.A.T. program is designed for students with strong undergraduate preparation in science who have decided after receiving the bachelor's degree that they want to teach science in secondary schools. Students who want to be certified or to complete this degree must make sure that the combination of undergraduate and graduate course work satisfies all requirements of the appropriate approved undergraduate science teacher education program.

The other graduate programs in science education are for persons who want additional preparation in science and education for K-12 teaching, for persons interested in supervisory and/or administrative positions in schools; for persons interested in educational evaluation, for persons who want to teach science and/or science education at the college level; and for persons interested in developing instruction programs in health, industrial, and/or related settings.

The graduate programs in science education conform the philosophy and pattern of the undergraduate programs outlined above. Specific components of each of the graduate programs are as follows:

Master of Arts in Teaching
Education 31 s.h.
Science specialization 14 s.h.
Minimum total 45 s.h.

Master of Science without Thesis
Science education 9 s.h.
Science specialization 20-25 s.h.
Correlative studies 3-4 s.h.
Minimum total 34 s.h.

Master of Science with Thesis
Science education 9 s.h.
Science specialization 20-25 s.h.
Correlative studies 3-4 s.h.
Minimum total 32 s.h.

Doctor of Philosophy
Advanced science education 26 s.h.
Research dissertation 10 s.h.
Science specialization 28 s.h.
Correlative studies 8 s.h.
Minimum total (beyond master's degree) 72 s.h.

Correlative studies includes intensified science preparation, enriched science preparation, enriched professional preparation, integrative studies.

Admission
The requirements for admission to graduate study in science education are identical to those of the Graduate College. The admission process is coordinated with the College of Education.
Special Programs

Iowa-ASSIST

Iowa-ASSIST is a special program in science education that involves in-service teachers in special curriculum redesign and implementation efforts. Summer and academic year workshops provide the basic mode of operation for the program. Associated with Iowa-ASSIST is an Interactive Curricular Figure, which provides printed and laboratory materials for awareness conferences and workshops. In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 300 teachers and students from Iowa schools; sponsors a Spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch, for about 400 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science; and each summer sponsors special workshops reaching national audiences and involving 750 teachers, supervisors, and administrators.

Research

Each faculty member in science education is responsible for one or more areas of research. Major research interests of faculty and graduate students include the following:

- Philosophy and sociology of science
- Individualized learning
- Computer-assisted learning
- Classroom interaction studies
- Creativity
- Intellectual development related to science teaching and learning
- Education in less developed countries
- Health education
- Studies of effective teaching and learning
- Attitudinal and other affective outcomes of instruction

International Programs

Another dimension of the Science Education Center is its emphasis on international issues. Many foreign students are enrolled. The faculty has been involved in several international programs and projects as well.

Facilities

The physical facilities for science education programs at The University of Iowa are exemplary.

The Science Education Center is located in Van Allen Hall near the center of the University campus.

Facilities include the main office of the Science Education Center, a photographic laboratory, a departmental conference room, an office for coordinating Iowa-ASSIST, a model in-service program for assisting schools in implementing new national curricula programs in Iowa schools, a suite of offices for student program activities; space for the elementary school focus of the program; a laboratory for the elementary school science methods course; two large teaching laboratories; offices for the history and philosophy of science components of the science education and secondary school teacher education programs; a self-instruction laboratory including laboratory and audiovisual materials; a library; a large seminar room used as an instructional center for some secondary teacher education sessions, including many facets of the Iowa-UPSET model; multiple offices for graduate assistants; a common area for small group discussions and individual work; and two large areas for group work and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement in-service undergraduate student areas in science education and to provide science options for elementary and special education majors.

For Undergraduates

97.22 Cooperative Education Internship (0-5 hrs) arr.
97.31 Fundamentals of Science (4 hrs) arr.
97.38 Investigation in Science (4 hrs) arr.
97.40 Science Survey (6 hrs) arr.
97.41 Science Survey (6 hrs) arr.
97.42 Science Survey (6 hrs) arr.
97.44 Science Survey (6 hrs) arr.
97.45 Science Survey (6 hrs) arr.
97.46 Science Survey (6 hrs) arr.
97.50 Science Foundations I (3 hrs) arr.
97.50 Science Foundations II (3 hrs) arr.
97.50 Science Foundations III (3 hrs) arr.
97.50 Science Foundations IV (3 hrs) arr.

Social Studies Education

Deans:

- Robert W. Puth

Program:

- Robert W. Puth

Associate professors:

- R. James Hare

Dr. Cliqk: B.A., M.A., Ph.D.

Undergraduate Program

The major in social studies education is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and social movement, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in
secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 60 semester hours of credit earned in departments cooperating in the social studies education program. Distribution of the course work is as follows: 12 semester hours in either U.S. or world history; 12 semester hours each in economics, political science, and sociology; at least 9 semester hours in geography; and 9 semester hours in geography, anthropology, U.S. history, or world history.

Students pursuing a social studies education major will take survey courses introducing them to the various social sciences. Many of the departments also offer independent study and readings as alternatives to formal courses.

There is no separate baccalaureate program in social studies education. Students who qualify are encouraged to do honors work in the social science department in which they wish to concentrate their work.

A Global Studies certificate may be obtained in conjunction with completing a social studies major.

Admission Requirements
Transfer students must have earned a minimum grade-point average of 2.7 on all work done in the subjects of the cooperating departments in order to be admitted to this program. Approval of candidacy for the bachelor's degree will be granted only to students who have a minimum 2.7 grade-point average in all college work undertaken in the cooperating departments.

Graduate Programs

Master of Arts

Some graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some serve as curriculum consultants for school districts, while others are staff members in community colleges. A few find the degree to be excellent preparation for professional work in curricular and penal institutions. For a few, the master's program in social studies education has provided access to civil service positions at various levels of government. The structure may be applied to take the master's degree with or without thesis, under either of two plans, both requiring 36 semester hours of credit in graduate courses. In one plan the student completes at least 10 semester hours of course work in the cooperating departments, and may complete the remaining 26 semester hours in one or among all of the cooperating departments.

In the other plan the student completes at least 20 semester hours of course work in the cooperating departments and not more than 10 in education, and may complete the remaining 26 semester hours in either or both of his or her related departmental areas.

Both plans require at least 9 semester hours of credit earned in courses numbered 200 or above, including one such course in each of the student's fields of emphasis.

All candidates also must complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education.

The candidate must pass a oral and written comprehensive examination. The program offers a wide variety of educational experiences, depending on the candidate's fields of study. Possibilities include small group instruction, seminar work, independent study and researching, computer experience, internships, and laboratory work.

Admission Requirements

A student wishing to major in social studies education for a master's degree must have earned at least 20 semester hours of undergraduate credit in one area of social studies at an accredited institution, and must have a minimum grade-point average of 3.0 on all work undertaken in social studies up to the time of application. After accepting a social studies education major, the M.A. candidate must maintain at least a 2.0 grade-point average.

Doctor of Philosophy

Some graduates of the social studies education doctoral program hold administrative posts in institutions of higher education, serving as principals, provosts, or heads of faculty or graduate studies. Some are department chairs in colleges of education or curricular directors in large urban districts. Many are engaged in teacher education programs in colleges and universities, whereas others are college instructors in an array of academic concentrations.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree, exclusive of any requirements established by the College of Education. These credits are to be distributed among the cooperating disciplines and educational preparation. Depending on the background and needs of the candidate, work in the chosen disciplines will compose approximately 56 percent of the total 90 semester hours, work in education approximately 50 percent.

Depending on the area of study be or she chooses, the candidate will have an opportunity for regular classroom, small group instruction, internship, independent study, fieldwork, and laboratory and computer experience. Seminar and advanced work in courses numbered 200 or above is required in each of the areas of study. All candidates must complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education.

After completing most of his or her course work, the candidate must take a qualifying examination covering each of his or her fields of emphasis.

The candidate must complete and orally defend a dissertation based on original scholarship in either one or her academic fields of study or on some aspect of social studies education.

Admission Requirements

Admission to doctoral study in social studies education requires a bachelor's degree in history or a social science from an accredited institution; a master's degree in history, a social science, or education; satisfactory performance on the Graduate Record Examination, and an academic record showing promise of scholarly success.

Facilities

Students in social studies education have access to the facilities and faculty of the cooperating departments and the College of Arts and Sciences. Facilities are also available, such as the University Hospital School; the Iowa Central Laboratory, the Statistical Consulting Center; the Computing Center, and the Weir Computing Center.

The faculty members who serve as social studies education advisors and coordinators are experienced classroom teachers who have advanced degrees have been earned in history, the social sciences, and education. They are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses

98:201 Individual Instruction in Social Studies Education

Individualized offerings, field studies, and individual projects in history and social science or in problems of professional education. May be repeated. Prerequisite: consent of instructor.

98:202 Seminar: Social Studies Education

Reading and discussion in significant developments in history, social sciences, and social studies education; additional investigator paper required. Prerequisite: consent of instructor. Same as 52:207.
Social Work

Director: Judd Wood Wingel
Professor: H. Wayne Johnson, Thomas H. Wals, Lance Y. Wallace
Professor emeriti: Ethel R. Anderson, Frank Z. Girard,죄 Minch Sivole

Adjunct professors: Woodrow W. Morris, James C. McNaught, Thomas C. Horst

Associate professors: Paul L. Adams, John L. Clark, John R. de la Riva, Mary A. Kirwan, Kari Waite, Krause, Kristina E. Metzler, William M. Thomsen

Professor emeritus: Stanley M. Kress, E. Norah, William J. M. Byers

Advisor professors: Katherine Alter, B. S. Eleanor Alexander, Body Blanchard, Johanna Green, Mary G. Hamilton, Robert A. Jackson, G. Michael Jacobsen, Doris Perry, Judith Brunt, Edward J. Saunders, Martin B. Scra"irs

Advisor professor emeriti: A. Louise Higa, E. Jean Williams

Visting adjunct professors: Craig R. Mosher


Adjunct instructors: John Brucas, Brenda Brooks, Paul Smal الأمير, Thomas H. Sull"\rance


The School of Social Work provides an accredited program of professional training at the baccalaureate and master's level. The school provides a philosophy of social policy that supports the people-centered approach to professional education.

Undergraduate Program

The Bachelor of Arts program prepares students for beginning professional social work practice. The goal of the program is to prepare students for employment in social services using B.A. graduates, such as public welfare, group services, health, mental health, and corrections; to provide a base for graduate study in social work or allied professions; and to prepare students for informed community participation in social welfare issues.

The program accredited by the Council on Social Work Education. Undergraduate students majoring in social work may satisfy the College of Liberal Arts General Education Requirements, excluding the social sciences requirement. The General Education Requirement in natural sciences should include 11:21 Human Biology. The following courses are required for the major:

Freshman/Sophomore Years

First Introduction to American Politics 3.0 h.
First Elementary Psychology 3.0 h.
First General Psychology 3.0 h.
Introduction to Sociology: Principles 3.4 h.
Any basic economics course 3.4 h.

In Sequence

Introduction to Social Work 4.2 h.
Human Behavior in the Social Environment 3.4 h.
Social Work Practice I 3.4 h.
Social Work Practice II 3.4 h.

Senior/Junior Years

Social Work and Disenchantment 2.8 h.
Approved course from another department (see School of Social Work for list) 3.1 h.

Social Welfare Program and Policy 3.1 h.
Social Work Research 4.4 h.
Field Experience Seminar 1.5 h.
Field Practice Experience 4.1 h.

A minimum of 12 semester hours of course work is required in one department listed above. Most students select either sociology or psychology. Courses used to meet general education and foreign language requirements do not count toward the 12 semester hours, nor do the specifically required social science courses. American studies

Anthropology

Business

Economics

Education

English

History

Home economics

Journalism

Political science

Psychology

Recreation education

Religion

Sociology

Spanish

Honor

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. The cumulative grade-point average is required for admission to the program, which enables students to study in depth subjects of interest to them.

Admission

Admission to the undergraduate program in social work requires:

Completion, with at least a C grade, of 22:22 Introduction to Social Work, which can be taken as the sophomore year, at least a 2.4 grade-point average; and

Completion of the application process.

More information is available from the coordinator of admissions at the School of Social Work.

Graduate Program

The Master of Social Work program prepares social workers for leadership in the profession and for advanced social work practice either as generalists or in one of two concentrations. The program's general focus is on family systems and social change. Its common goals, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change in social context and to develop the capacity to participate in the process of helping people, which translates to the understanding of human behavior in society and the individual, and to acquire assessment skills for working with individuals, families, small groups, organizations, and communities.

The program is accredited by the Council on Social Work Education. The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school, including at least 36 semester hours earned after admission to the program. The student may obtain advanced standing for up to 12 semester hours of graduate study completed before admission to the program. Students who have completed an accredited undergraduate major in social work are eligible for a 12-semester-hour reduction of credits required for the M.S.W. With their advisers, who play an active role in assisting students in their educational planning, students should explore additional ways to waive requirements.

The school operates a 12-month program. The summer session is a full semester, but with not as wide a range of classroom courses as is offered during fall and spring.
Generalist
The generalist option is designed to provide students with advanced knowledge and skills across concentrations so that they are better able to fulfill a variety of functions within a community. This is especially important and appropriate for students who want to work in rural communities, small agencies, and public welfare; they will need administrative and community development skills as well as clinical skills. It is also suitable for persons who want to be able to move across the areas of various types of social work practice rather than to be limited to a single type of practice. Practicum will include some opportunity for practice experience at each system level.

Concentrations complete a minimum of 9 semester hours of practicum in their concentration.

Human Development and Change
Through the human development and change concentration, students develop practice competence as enablers of personal development and change and as brokers/advocates for individuals and families—both traditional and nontraditional. The concentration prepares students to enhance individual, interpersonal, and social functioning through intervention with individuals, families, and small groups. It maintains a holistic perspective and develops awareness of the interrelationship between individuals and the social, political, and economic environments in which they live. Cooperation is given to the biological, psychological, cultural, and social origins of behavior.

Administration and Social Development
The administration and social development concentration seeks to equip students to be effective leaders and facilitators, responsible to people and their needs in human service organizations as well as in neighborhoods and communities. The concentration's dual focus allows students to emphasize either administrative or social development, or to combine the two. The administrative content is designed to enable students to develop practice skills in administrative roles, such as supervisor, program developer, program monitor, and program administrator. Its focus is on the middle management of large organizations or the direction of small organizations. The social development content emphasizes helping skills in policy analysis, investigative and documentary research, negotiation, conflict resolution, social and political action, and cooperative development process, whether domestic or international. Its purpose is to promote more humanistic forms of organization and mutual support systems, and to mobilize alienated and oppressed people to move societies toward greater equity in rights and resources.

Satellite Centers
The school offers both classes and practicum learning in the Des Moines and Quad Cities satellite centers. Register School of Social Work faculty are available for student advising and for teaching all required courses.

The centers have three major purposes: to enrich the educational programs of full-time students by providing greater diversity of practicum opportunities; to make pursuit of the graduate degree in social work geographically available to students unable to relocate to Iowa City; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on choices of the student makes, practicum as early as the second semester. Some students remain at the Iowa City-Cedar Rapids area for the remainder of their programs, but must be assigned to the Des Moines or Quad Cities Centers. This flexibility involves the student's relocation.

The Des Moines Center, 115 miles from Iowa City, is located in the state's capital city. Des Moines also is the largest city in the state. Many fine practicum opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles from Iowa City, As part of the Quad Cities metropolitan area of 794,000 people, this center provides a wealth of practicum opportunities unavailable in Iowa City, including regional and advocacy planning, agencies, and social organizations for minority populations, and programs for the elderly.

Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for classes and limited hours.

Intensive, short-term, split-session courses are offered in the Iowa City campus in the summer to enable students from other centers to take on-campus courses.

Part-Time Program
The School of Social Work has one of the largest part-time programs in the nation. Admission and degree requirements are the same as for full-time students. The program enables single parents, working people, and others unable to pursue a degree on a full-time basis to complete the program. Part-time students may complete the program in no more than twelve semesters, with only two semesters of full-time registration (9 semester hours or more).

Students may complete the part-time program in Iowa City, or in the Quad Cities or Des Moines Centers.
Joint Degree and Special Programs

The school has formal agreements with the College of Law and the Department of Urban and Regional Planning to offer joint degrees. Students must be accepted to each department through its regular admissions process. Twelve semester hours in each program are applied to requirements of the other, thus reducing the time it would normally take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business Administration, the College of Education, the American Studies Program, School of Religion, School of Journalism and Mass Communication, and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Other special projects students may become involved in are our National Resource Center on Family-Based Services and the School of Social Work Gerontology Program.

Another feature of the school is the opportunity it affords its students to participate in travel-study seminars. Each spring, a policy seminar travels to Washington, D.C. Other urban, rural, national, and international seminars are available when there is sufficient interest.

Graduate Admission

The criteria for admission for full-time and part-time students in the M.S.W. program are:

• A bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities;

• At least a 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate course work (exceptions noted below);

• Three positive letters of recommendation, including one regarding academic abilities and one or more regarding social service or other work experiences;

• A personal statement addressing criteria specified by the School of Social Work.

Previous experience in the human services (volunteer, field or employment) is desired. Prior enriching life experience (cross-cultural, international experience and background, and minority status) also will be given consideration.

Foreign applicants must score at least 500 on the Test of English as a Foreign Language (TOEFL).

It is the school's policy to admit 10 to 25 percent of the M.S.W. class with grade-point averages below 3.0. Applicants who are especially strong candidates on the basis of other criteria may be admitted. Since the school seeks to maintain a heterogeneous student body, it makes special efforts to admit students representing a diversity of racial, ethnic, and socioeconomic backgrounds. Students with developmental disabilities also are encouraged to apply.

The part-time program is designed for students for whom full-time study would be a hardship due to employment or other considerations.

Applications for full-time study are accepted beginning September 1 for the next academic year. Applications for part-time study may be made at any time.

A complete statement of graduate admissions policies is available upon request.

Continuing Education

Through the Saturday and Evening Class Program in Iowa City and the School of Social Work's Des Moines and Quad Cities centers, non-degree students may enroll for courses and workshops. Twelve semester hours of graduate course work may be applied to the master's degree requirements for students who later enroll in the program.

Financial Aid

Financial aid for students varies from year to year. All students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid, and should maintain close contact with their academic advisors regarding availability of funds from the School of Social Work. Aid received through The University of Iowa office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

Various types of aid administered by the School of Social Work include research and teaching assistantships, work-study appointments, traineeships, scholarships, and the Eleanor K. Taylor loan fund. Aid is available from other sources, such as Special Support Services, tuition grants, International Scholarship Awards, and the South African Scholarship Program, as well as from a few agencies that provide stipends for graduate students in practice.

Courses

Primarily for Undergraduates - 4520 Introduction to Social Work 4 h.

Courses usually count as social work credits and are not offered for graduate degree credit. Students might find classes of interest in the problems of social work, historical development of American social

© 2014 Human Behavior in the Social Environment 3 h.

Review of social science theoretical perspectives; culture, community, organizations, group, family and individual; social systems perspective. This class is not intended for students interested in pursuing graduate study who wish to take classes leading to a graduate degree in social work.

Social Work/LIBERAL ARTS 213
Sociology/LIBERAL ARTS 215

42201 Structure of Eating Disorders 1 s.h.
Recovery from eating disorders occurring in the context of our academic culture with a focus on identity, gender, developmental, physical, and cultural issues and trends.

42205 Advanced Research Seminar 3 s.h.
Appropriate literature and materials for analyses such as needs assessment, program evaluation, and policy analysis.

42207 Material Resource Development and Management 3 s.h.
Introduce various economic resources required by social welfare agencies and methods by which they are acquired and maintained. Explore ethical dilemmas inherent in allocation of research and development funds. Include application of social welfare system agencies.
Prerequisite: QM 204 or consent of instructor.

42209 Organizational Behavior and Change 3 s.h.
Aims to prepare students for leadership positions that require dealing with groups, team, and organizational issues. Focus on understanding organizational behavior through the lens of micro, meso, and macro-level models and the influence of different interventions and solutions. Prerequisite: QM 101 or consent of instructor.

42213 Women and Social Change International Development 3 s.h.
Transformation of societal change—both material and ideological—due to political change in women's lives and issues of gender, sexuality, and race; International Development and Social Change: 2 credits; Community Development and Social Change: 2 credits.

42216 Social Work Planning and Policy Making 3 s.h.
Order-of-need and interprogram analysis of problems associated with urbanization and development in the developing nations. Junior or senior standing; 42734 or 42735 required.

42246 International Social Welfare 2 s.h.
Same as social welfare 6216. An interdepartmental course in selected topics of contemporary interest. Field of study includes non-technical and technical problems associated with urbanization and development in the developing nations. Prerequisite: 42734 or 42735, or consent of instructor.

42256 Research Behavior: Selected Areas 2 s.h.
Topics include an ongoing course. Prerequisite: 42216, 42272, or consent of instructor.

42301 Social Work Practice: Selected Areas 2 s.h.
Topics include an ongoing course. Prerequisite: 42256, or consent of instructor.

42304 Social Welfare Policy: Selected Areas 2 s.h.
Topics include an ongoing course. Prerequisite: 42272, or consent of instructor.

42331 Community Organization 2 s.h.
Community organization and its impact on social welfare agencies in the United States and the world.

42335 Field Study Seminar 2 s.h.
A seminar for field workers through travel to appropriate sites for observation and for conversations with professionals employed in various capacities. Prerequisite: 42272 or consent of instructor.

42340 Social Work Policy Analysis and International Perspectives 3 s.h.
Social work practice related to policy analysis with an emphasis on international and multicultural issues and their relation to social work practice. Prerequisites: 42216, 42272, and 42274, or consent of instructor.

42340 Individual Study 1 s.h.
Project related to student's interest carried out under the direction of faculty member, sometimes including group participation. May be repeated. Prerequisites: admission to Graduate College.

42345 Practicum Seminar 1 s.h.
Designed to enhance graduate program academic learning with the practical application portable skills. Prerequisites: 42216, 42272, 42274, and 42275.

42349 Practicum in Social Work Work 2 s.h.
Practicum in social work practice under supervision of professional staff. Prerequisites: 42216, 42272, 42274, and 42275.

42350 Theses 0-6 s.h.
May be repeated. Approval of advisor or committee: 42350.

Sociology

Chair: Edward J. Laxter
Professor: Jane E. Edmiston, Samuel J. Laxter, Charles W. Manger, David J. Pecora, James L. Price, Cecilia Ridgeway, Lynne G. Weatherman
Associate professor: Griff C. Church, Fred C. Perry, Robert Hornn Fisher, Harold Pope, Cecilia Ridgeway, John R. Strassler, Stephen G. Warren
Assistant professor: William Feist, Rosemary Gather, Linda A. Jacobsen, Bruce Noretany, Elizabeth Mulin, Robyn Steiger
Degrees offered: B.A., B.S., M.A., Ph.D.

Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of baccalaureate study in sociology provides background for employment in several fields, such as social services, criminal justice, personnel, applied social research, community organization, and social work teaching in secondary schools. The program also provides a foundation for graduate or professional study in social work in urban planning, law, criminal justice, social policy, and similar areas. The degree prepares students for work toward advanced degrees in sociology, which qualify them for college or university teaching and academic, private, and governmental research positions.

Undergraduate students majoring in sociology may elect either a Bachelor of Arts or a Bachelor of Science degree. Students interested in careers in the physical, biological, or social sciences are advised to seek the Bachelor of Science degree.

Both programs require 27 semester hours of course work in sociology, including

34:1 Introduction to Sociology: Principles
34:12 Introduction to Sociology: Problems
34:14-11 Theory, Research, and Statistics
6 Electives

The student should complete the two-semester theory, research, and statistics course work early to maximize his or her capacity to benefit from the other social-sciences courses, anthropology, economics, geography, political science, or psychology. A complete requirement for social psychology is available in the department office.

Departmental requirements are the same for transfer students as for other students. While some courses taken at other colleges are applicable toward the major, the department requires that transfer students majoring in sociology take hist 112 or 113 or 114 or 115.

Minor

In addition to its major programs, the department provides supportive course work and several clusters of courses of value to undergraduate students who want to combine a minor in sociology with a major in another field, particularly another social-sciences course, business administration, elementary education, or nursing. A minor concentrating in sociology is available in the department office.

Sociology Teaching Major

To major in sociology and qualify for a teaching certificate, students must complete:

All departmental requirements for either a B.A. or B.S. degree;

Twelve semester hours of course work in each of two related fields, taken from
ecconomics, geography, American history, world history, political science, and psychology (20 semester hours required in psychology); and
The professional courses required for certification (23 semester hours).

Sociology courses taken to fulfill the General Education Requirement in social science may be counted toward the sociology teaching major. Other social science or history courses taken to satisfy General Education Requirements may not be counted toward the hours required in related fields.

Honors
The College of Liberal Arts Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. To qualify for the honors program in sociology, students must have a grade-point average of 3.25 overall and in sociology courses. The honors curriculum consists of limited-enrollment classes in which students are able to explore in-depth issues of mental illness with faculty and other honors students. The special requirements for an honors degree in sociology are completion of the honors seminar (34100), one advanced undergraduate course or graduate course approved by the honors director, and an honors thesis. The honors thesis provides students with an opportunity to do sociological research in consultation with a faculty member of the student's choice. As an option, honors students may take the honors sections of 341 Introduction to Sociology: Principles, thereby waiving the course requirement of 342 Introduction to Sociology: Problems for a degree in sociology.

Graduate Programs
The graduate programs in sociology are preparation for professional careers. Depending on which program the student chooses, the master's program prepares the student for doctoral studies or for professional application in the field. The doctorate program has a research emphasis, is designed for sociologists for positions in colleges and universities, for independent research, private, and governmental positions. Opportunities for research in survey, experimental, and observational methods are readily available in the department.

Master of Arts
The M.A. degree in sociology requires 30 semester hours with thesis or 32 semester hours without thesis. The program without thesis includes two required core courses and two electives. Electives must be at the 500 level. Students must choose a terminal degree and for whom a wider range of course content in sociology is appropriate.

All candidates for the M.A. degree must complete 342/2 History of Sociological Theory, 342/2 Sociological Theory, 341/2 Elementary Statistics and Data Analysis, and 341/2 Sampling, Measurement, and Observation Techniques, with grades of B or higher.

M.A. in Criminal Justice and Corrections
The program is designed for individuals who wish to work in criminal justice. Since it is assumed that a sociological orientation and background is extremely valuable for criminal justice work, the major emphasis of the program is sociological. It is also recognized that specialized knowledge and experience is essential to performance of specific criminal justice roles; therefore the student must select 15 semester hours of course work in areas such as legal process, administrative procedures, or direct intervention techniques in order to develop expertise. The flexible curriculum allows students, in consultation with their advisors, considerable choice in selecting courses that will best enable them to achieve their career goals.

A limited number of students enter the program each year, so a low faculty-student ratio is maintained. Internships are available with local criminal justice agencies. Successful completion of this program requires a minimum of 36 graduate credits, a 3.0 grade-point average on all work taken, and a master's paper (not a thesis).

Joint Program in Sociology and Law
A student may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. The College of Law will give credit for up to 12 hours of graduate work taken after entering the joint program toward the 72 hours required for the J.D., even though those hours are also credited toward the M.A. in sociology.

At the discretion of the student's M.A. committee, the Department of Sociology may credit up to 12 semester hours of law courses toward the M.A. degree. This cross-credit allows a student to receive the J.D. and the M.A. by taking less course work than would be necessary if the two degrees were pursued independently. This program is highly individualized, allowing the student to explore various aspects of the relationship between law and society.

Doctor of Philosophy
The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate-level course work, including the advanced M.A. course 341/2 Intermediate Statistics and Data Analysis and 35 semester hours in methods and statistics. Candidates also must pass comprehensive examinations and write a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology—theory, history of theory, methodology, and statistics—and on one major and one minor area chosen from among the areas represented by the faculty, such as social psychological, social criminology, family, social stratification, organizations, demography, methodology, and statistics. A description of faculty interests is available upon request.

A detailed statement of regulations for graduate study also is available upon request. Prospective doctoral candidates should examine this statement carefully.

Admission
Admission to graduate study in sociology normally requires a minimum undergraduate grade-point average of 3.0 and a toefl score of 1100 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. Foreign students whose native language is not English should admit scores from the TOEFL exam. In addition to fulfilling the Graduate College requirements for admission (see the "Graduate College section of the Catalog), the applicant must complete a departmental application statement and use its personal reference forms in obtaining three letters of recommendation.

Applications should be submitted at least two months before the start of the academic year to which admission is requested. The deadline for applying for departmental admission is April 15 of the academic year. Admission decisions are based on consideration of prior academic performance, personal reference letters, scoring on the GRE Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. 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 are no foreign language requirements for either the M.A. or Ph.D. degree in sociology. Requirements concerning admission should be directed to the chair, Admission Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.S. or a B.A. degree, a grade-point average of 2.75, and a total score of 5000 from the quantitative plus verbal sections of the GRE Aptitude Test. A descriptive publication is available at the department office.

Financial Aid
The Department of Sociology offers three types of financial aid to students: teaching assistantships, research assistantships, and teaching/research fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive one-half time assistance work 20 hours each week for...
35.150 Spanish American Civilization
3 s.h.
35.150 Spanish Civilization
3 s.h.
Electives (6 s.h.)

Two electives may include one course in Portuguese (with exception of 38.1 and for no more than 4 semester hours credit) or any course number 35.001 or above, except that no more than 4 semester hours may be elected in conversation courses (2 semester hours each of 35.103 Spanish Conversation: Junior Level and 35.104 Spanish Conversation: Senior Level). No more than 3 semester hours may be elected in special work courses. The following courses may not be elected to fill this requirement:
35.111 Accelerated Elementary Spanish
35.102 Advanced Elementary Spanish
35.105 Language Teaching Practicum
35.115 Methods of Foreign Language Teaching
35.116 Language Laboratory Equipment Preparation
35.117 Basic Program for Foreign Language Computers and Instruction
One course given in English may be taken to satisfy 3 semester hours of this requirement provided all additional readings are done in Spanish.

High School Teaching Certification in Spanish
Spanish majors who want certification to teach high school must complete the requirements listed above for the major in Spanish. Several courses in the College of Education also are required as is one semester of student teaching taken in the senior year.

Minor in Spanish
A minor in Spanish requires 15 semester hours of course work in Spanish taken at The University of Iowa or at a University of Iowa off-campus study program, including 12 semester hours at the 100 level. The 15 courses listed above as elective above toward the other requirement for the Spanish major also may not be applied toward the minor. No more than 3 semester hours of credit may be applied toward the minor from the following courses:
35.119 Introduction to Bilingualism
3 s.h.
35.127 Introduction to Chicano Literature and Culture
3 s.h.
35.174 Topics in Chicano-Puerto Rican Studies
3 s.h.
35.175 Cultural Indentity in Caribbean Literatures
3 s.h.
35.176 Latin American Studies Seminar
3 s.h.
35.195 Special Work
1-3 s.h.
Students who plan to use the Spanish minor in teaching on the secondary level or in bilingual programs are encouraged to complete language study through 35.195 Fourth-Year Spanish Language or its equivalent, and to elect additional courses in Spanish phonology and Hispanic literature and civilization.

Transfer Credit
A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Foreign Study Programs
The department has two foreign study programs, one in Mexico City and the other in Burgos, Spain; both last eight weeks in the summer. A limited amount of credit earned in these and other foreign study programs may be applied toward the requirements for the major or minor in Spanish.

Honors in Spanish
Admission to the Honors Program in Spanish requires a minimum 3.5 overall grade-point average and a minimum 3.2 average in Spanish. Graduation with honors in Spanish is required. In addition to the 30 semester hours major described above, 6 semester hours earned in 35.198 Honors: Spanish Literature and/or 35.197 Honors: Spanish Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Bachelor of Arts in Portuguese
Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing for a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Brazilian Portuguese; they incorporate cultural material in the form of films and music.

The Bachelor of Arts in Portuguese requires the following courses or their equivalents, for a total of 27 semester hours of course work beyond the second-year level:

Prerequisites
35.11 Elementary Portuguese I
4 s.h.
35.12 Elementary Portuguese II
4 s.h.
or
35.100 Accelerated Portuguese
0-5 s.h.
35.11 Intermediate Portuguese I
4 s.h.
35.12 Intermediate Portuguese II
4 s.h.

Required Courses (15 s.h.)
35.122 Topics in Portuguese Language (upper-division language)
3 s.h.
35.114 Culture and Civilization of the Portuguese-Speaking World
3 s.h.
35.105 Brazilian Literature I
3 s.h.
35.106 Brazilian Literature II
3 s.h.
35.107 Introduction to Portuguese Literature
3 s.h.
Two of the Following Courses (6 s.h.)
35.123 Portuguese for the Professionals
3 s.h.
(upper-division language)
35.100 Accelerated Portuguese
3 s.h.
35.105 Brazilian Literature I
3 s.h.
35.106 Brazilian Literature II
3 s.h.
35.119 Topics in Portuguese Linguistics
3 s.h.
Electives (6 s.h.)

Other courses in the above group or other non-regional offerings in Portuguese (seminars, conversation). Approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology).

Minor in Portuguese
The undergraduate minor in Portuguese consists of 15 semester hours taken at The University of Iowa in courses numbered 35.100 and above.

Courses for Undergraduate Majors
Undergraduate students in other disciplines may meet part of the College of Liberal Arts General Education Requirements in humanities and foreign civilization and culture with 35.100 Contemporary Latin American Literature which the requirements are in English. The department offers several other literature and cultural survey courses that are taught in English and are of general interest.

Latin American Studies Program
The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America. Work in the program leads to a certificate or minor in Latin American Studies.

To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminars. For further information on the Latin American Studies Program.
Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of undergraduate Spanish major. Deficiencies may be remedied with the appropriate course work. The following course work is required:

- 35:177-178 Periods and Generes in Spanish American Literature I-II 6 s.h.
- 35:187-188 Periods and Generes in Spanish Literature I-II 6 s.h.
- 35:200 Foreign Language Teaching Methods 3 s.h.
- 35:203-204 Advanced Spanish Linguistics I-II 8 s.h.
- 35:208 Historical American Romance Language 7 s.h.

Four elective courses at the 200 level or the advanced 100 level, no more than two (6 s.h.) of which may be taken outside the department; the required minimum is 37 semester hours for the M.A. program.

Students also are responsible for the works listed in the departmental reading list.

Maximum Study Loads

Maximum course registration is 15 graduate semester hours during the fall or spring semesters and 9 graduate semester hours during the summer sessions. One-quarter- and one-third-time teaching assistants are permitted to register for the maximum study loads. One-half-time teaching assistants may register for no more than 12 semester hours in the fall or spring semesters, and for not more than 6 semester hours during the summer semester. All additional semester hours may be taken only with Graduate College approval.

Transfer Credit

A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the 37-semester-hour requirement for the M.A. degree.

Teaching Certification

Exclusive of the student-teaching requirement, graduate students may take no courses necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

Three written examinations and one oral examination are given. For the written examinations, students must include at least one topic each from two of the following three areas (both Spanish and Hispanic-American literature must be represented): Spanish linguistics, Medieval literature or Golden Age literature; and, Modern Spanish literature, Spanish American literature, or Luso-Brazilian literature.

Doctor of Philosophy in Spanish

Two doctoral programs are available. The first is dedicated to Hispanic literatures. Before the comprehensive examination, candidates 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 (in a Portuguese-Brazilian program is especially recommended). Complete the equivalent of a year of college Portuguese, and complete the equivalent of one year of college-level study of another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish linguistics. Before taking the comprehensive examination, candidates must complete the equivalent of two years of college Latin, the equivalent of three years of college Portuguese, and the equivalent of two years of college-level study of a third approved foreign language.

Students also are responsible for the works listed in the departmental reading list.

Program I: Literature Track

The following course work is required:

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<tr>
<th>M.A. courses or equivalent transfer credits</th>
<th>37 s.h.</th>
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<tr>
<td>35:208 Introduction to Contemporary Theory</td>
<td>3 s.h.</td>
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<tr>
<td>Three 300-level semesters</td>
<td>3 s.h.</td>
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<tr>
<td>35:200 Introduction to Contemporary Theory</td>
<td>2 s.h.</td>
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</table>

Eight elective courses at the 200 level or the advanced 100 level, no more than three (9 s.h.) of which may be taken outside the department, but all needed total semester hours to the required minimum of 72 in the Ph.D. program.

Program II: Linguistic Track

The following course work is required:

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<tr>
<td>Department of Linguistics:</td>
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<tr>
<td>103:110 Articulatory and Acoustic Phonetics</td>
<td>3 s.h.</td>
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<tr>
<td>103:111 Syntactic Analysis</td>
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<td>103:112 Phonological Theory and Analysis</td>
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<td>3 s.h.</td>
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<tr>
<td>Department of Spanish and Portuguese:</td>
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<tr>
<td>One course in Advanced Spanish Syntax</td>
<td>3 s.h.</td>
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<tr>
<td>One course in Comparative Romance Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>One course in Spanish (Medieval)</td>
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</table>

One elective course in Spanish linguistics 3 s.h.
Two 300-level seminars in Spanish linguistics 6 s.h.
35:209 Thesis 2 s.h.

Total semester hours required 73 s.h.

Ph.D. Qualifying Examination

All doctoral students are admitted conditionally to the Ph.D. program and must take a qualifying examination during their second semester of Ph.D. study. Upon satisfactory completion of the Ph.D. qualifying examination, students are admitted to the Ph.D. program on a regular basis.

The purpose of the Ph.D. qualifying examination is to assess a doctoral student's potential for scholarly research, abilities in analytical thinking and critical reasoning, and level of sophistication in library or linguistic argumentation. The exam may be the formal occasion on which doctoral students begin to give intellectual focus to their program of study. Because it affords opportunities for both student initiative and faculty advice in defining a doctoral student's academic goals, the Ph.D. qualifying examination is significant in preparing doctoral students to take the Ph.D. comprehensive examination and to write the Ph.D. dissertation.

The Ph.D. qualifying examination is administered in both written and oral parts and includes the following:

Written presentation and subsequent oral defense of a research paper.

Written analysis of a single text in Hispanic literature of a single problem in Spanish linguistics that is assigned to the candidate 30 minutes before a two-hour oral qualifying examination. The problem selected is taken from a short reading list that has been previously agreed upon among the candidate and his or her examiners; or, in the case of a linguistics qualifying examination, the problem selected also may be taken from the range of the candidate's previous course work.

Oral examination on major literary or linguistic works with which the candidate may not be expected to be familiar, either from reading lists or from previous course work.

Excluding preparation of the research paper and the 30 minutes of advance selection on the test or problem presented to the candidates for analysis, the length of the written portion of the Ph.D. qualifying examination is two hours. The oral portion, which includes defense of the research paper, discussion of the written examination, and discussion of selected works or linguistic works, is usually one and one-half hours long. The examination

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Program see the "Latin American Studies Program" in this section of the Catalog.

American literature, or Luso-Brazilian literature.

Doctor of Philosophy in Spanish

Two doctoral programs are available. The first is dedicated to Hispanic literatures. Before the comprehensive examination, candidates 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 (in a Portuguese-Brazilian program is especially recommended). Complete the equivalent of a year of college Portuguese, and complete the equivalent of one year of college-level study of another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish linguistics. Before taking the comprehensive examination, candidates must complete the equivalent of two years of college Latin, the equivalent of three years of college Portuguese, and the equivalent of two years of college-level study of a third approved foreign language.

Students also are responsible for the works listed in the departmental reading list.

Program I: Literature Track

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Eight elective courses at the 200 level or the advanced 100 level, no more than three (9 s.h.) of which may be taken outside the department, but all needed total semester hours to the required minimum of 72 in the Ph.D. program.

Program II: Linguistic Track

The following course work is required:

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One elective course in Spanish linguistics 3 s.h.
Two 300-level seminars in Spanish linguistics 6 s.h.
35:209 Thesis 2 s.h.

Total semester hours required 73 s.h.

Ph.D. Qualifying Examination

All doctoral students are admitted conditionally to the Ph.D. program and must take a qualifying examination during their second semester of Ph.D. study. Upon satisfactory completion of the Ph.D. qualifying examination, students are admitted to the Ph.D. program on a regular basis.

The purpose of the Ph.D. qualifying examination is to assess a doctoral student's potential for scholarly research, abilities in analytical thinking and critical reasoning, and level of sophistication in library or linguistic argumentation. The exam may be the formal occasion on which doctoral students begin to give intellectual focus to their program of study. Because it affords opportunities for both student initiative and faculty advice in defining a doctoral student's academic goals, the Ph.D. qualifying examination is significant in preparing doctoral students to take the Ph.D. comprehensive examination and to write the Ph.D. dissertation.

The Ph.D. qualifying examination is administered in both written and oral parts and includes the following:

Written presentation and subsequent oral defense of a research paper.

Written analysis of a single text in Hispanic literature of a single problem in Spanish linguistics that is assigned to the candidate 30 minutes before a two-hour oral qualifying examination. The problem selected is taken from a short reading list that has been previously agreed upon among the candidate and his or her examiners; or, in the case of a linguistics qualifying examination, the problem selected also may be taken from the range of the candidate's previous course work.

Oral examination on major literary or linguistic works with which the candidate may not be expected to be familiar, either from reading lists or from previous course work.

Excluding preparation of the research paper and the 30 minutes of advance selection on the test or problem presented to the candidates for analysis, the length of the written portion of the Ph.D. qualifying examination is two hours. The oral portion, which includes defense of the research paper, discussion of the written examination, and discussion of selected works or linguistic works, is usually one and one-half hours long. The examination...
committees for the Ph.D. qualifying examination is composed of five departmental faculty members.

Comprehensive Examination
The purpose of the Ph.D. comprehensive examination is to determine whether the candidate has gained sufficient breadth and depth of research knowledge in Hispanic Languages or in Spanish linguistics to enter the Ph.D. examination as a teacher-scholar. The number of examination fields is four, organized as follows:

Literature Track
A broad area in Spanish literature history; a reading list is determined by the student and his or her advisory committee.

A broad area in Spanish-American literary history; a reading list is determined by the student and his or her advisory committee.

Two specialized areas of the candidate's choosing. These areas might involve further and more specialized exploration of particular periods, genres, or movements within Spanish, Spanish-American, and/or Latin-American literature and cultural history; or they might involve in-depth study of a specific problems in Hispanic literary criticism or in literary theory. The candidate is given wide latitude in formulating the reading lists for these areas according to his or her research and teaching interests.

Linguistics Track
Contemporary Spanish syntax; a reading list is provided.

Contemporary Spanish phonology; a reading list is provided.

History of the Spanish language; a reading list is provided.

One specialized area of the candidate's choosing. This area might involve exploration of a specialized topic in one of the three core areas listed above; or it might involve study of a particular topic in comparative Romance philology, Spanish dialectology, Portuguese linguistics, comparative Spanish-Portuguese linguistics, applied linguistics (e.g., bilingualism, second language acquisition, sociolinguistics), or linguistic theory. The candidate is given wide latitude in formulating the reading lists for this area according to his or her research and teaching interests.

The Ph.D. comprehensive examination is administered in both written and oral parts. The written portion consists of a three-hour examination in each of the candidate's four areas; an oral examination follows, usually lasting two hours. The examining committee is composed of five departmental faculty members.

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of support are available for the completion of a master's degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as graduate students' studies and performance meet departmental standards, they will continue to receive support over a reasonable period of time, but usually not for more than five years. Students who wish financial support should apply directly to the departmental office.

Graduate students pursuing advanced degrees in the Department of Spanish and Portugués are required to spend at least one academic year as a teaching or research assistant in the department.

Facilities
The language laboratory provides facilities for language learning, teaching, and research. These include standard and shortwave radio, tape recorders, record players, sound recording rooms, two drill rooms with 56-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, films and film projection equipment and facilities, and a library of tape, videotape, and disc recordings. The department offers its major's specific course in language laboratory procedures.

Courses
Spanish—Primarily for Undergraduates
Undergraduate students who have had less than two years high school Spanish are placed in a first- or second-semester course. Students with two or more years of high school Spanish are placed in a third- or fourth-semester course. Prospective and entering students should consult a departmental adviser. Students who want more advanced placement may take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to previously completed courses. Students may not, except with the department chair's approval, take an elementary course for credit after having completed a higher-level course for which the departmental prerequisite is or is equivalent to a prerequisite.

10:000 Cooperative Education Internship
6:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:000 Cooperative Education Internship
6:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:00 Accelerated Elementary Spanish
5:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:00 Introductory Reading in Spanish
2:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:00 Intermediate Spanish I
3:00 Preliminary: 75:5 or equivalent.

15:00 Intermediate Spanish II
3:00 Preliminary: 75:5 or equivalent.

15:00 Advanced Intermediate Spanish
5:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:00 Contemporary Latin American Narrative
3:00 Preliminary: 75:5 or equivalent.

15:00 Spanish Preparatory
3:00 Designed for undergraduate preparation in Spanish with a student's knowledge of Spanish limited to the elementary level. Designed for students who have little or no knowledge of Spanish and are seeking a preparatory course in the language to advance to subsequent courses.

15:00 Spanish Conversation: Level I
2:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:00 Spanish Conversation: Level II
2:00 Spanish 1, 161
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.

15:00 Spanish Conversation: Level II
2:00 Designed for further study and approaching Spanish proficiency, covering more advanced communication topics. May be repeated. Preliminary: 75:5 or equivalent.

15:00 Spanish Conversation: Level II
2:00 Designed for further study and approaching Spanish proficiency, covering more advanced communication topics. May be repeated. Preliminary: 75:5 or equivalent.

15:00 Spanish Language Practicum
3:00 Spanish Conversation: Level II
2:00 Spanish Conversation: Level II
26:00 Elementary Spanish I
Preliminary: 75:5 or equivalent.
20:54 Twentieth-Century Spanish Drama 4 b.

20:55 Spanish Modern Epic 3 b.

20:56 Spanish Short Story 3 b.


20:58 Twentieth-Century Spanish Gay Poetry 3 b.

20:59 Twentieth-Century Spanish Hispanic American Literature 3 b.

20:60 Twentieth-Century Spanish Hispanic American Poetry 3 b.

20:61 Twentieth-Century Spanish Hispanic American Prose 3 b.


20:63 Twentieth-Century Spanish Hispanic American Women's Writing 3 b.

20:64 twentieth-century interlanguage Portugese 3 b.

20:65 twentieth-century interlanguage Portugese 3 b.

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Interim: Ruth A. Pogreback
Adjunct associate professor: Carl E. Bette
Instructor: H. Diseman, J. L. Taylor
Clinical staff: T. D. Clute, Anne K. Gay, Laura S. Kurz, J. Jean Mester, Diane P. Nudo
Graduate Programs
The B.S. or B.A., degree in speech and hearing science are as follows:

3.15 Introduction to Speech and Hearing Processes and Disorders
3.15.1 Articulatory and Acoustic Phonetics
3.15.2 Anatomy of Speech and Hearing Mechanisms
3.15.3 Fundamentals of Speech Science
3.15.4 Introduction to Hearing Science
3.17.1 Psychology of Language I
3.17.2 Psychology of Language II
3.21.1 Introduction to Auditory Acoustics
3.21.2 Introduction to Statistical Methods
3.21.2 Elementary Statistics and
3.31.1 Elementary Psychology
3.31.2 General Psychology

Undergraduate Programs
Since the major's degree or its equivalent in the minimum level of preparation for professional programs in this field, the undergraduate curricula leading to B.S. or B.A., degrees in speech and hearing science do not qualify an individual to work professionally in the field but primarily prepare students for graduate work. Hence, the undergraduate programs emphasize the normal processes of speech, hearing, and language. Those undergraduate programs aim may be taken by persons earning a degree in the College of Liberal Arts who do not want a career in this field.

The major requirements for the B.S. or B.A., degree in speech and hearing science are as follows:

3.15 Introduction to Speech and Hearing Processes and Disorders
3.15.1 Articulatory and Acoustic Phonetics
3.15.2 Anatomy of Speech and Hearing Mechanisms
3.15.3 Fundamentals of Speech Science
3.15.4 Introduction to Hearing Science
3.17.1 Psychology of Language I
3.17.2 Psychology of Language II
3.21.1 Introduction to Auditory Acoustics
3.21.2 Introduction to Statistical Methods
3.21.2 Elementary Statistics and
3.31.1 Elementary Psychology
3.31.2 General Psychology

Graduate Programs
Masters of Arts
The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the M.A. with professional emphasis designed for the student who will meet the requirements for the major program.

The student may complete an M.A. degree in speech pathology and audiology in one program, or he/she may complete at least 3.32 graduate hours in one or two programs.

The student must complete a minimum of 36 semester hours of graduate credit for a master's degree.

All M.A. students must complete at least 4 semester hours of research training.
2. Speech-Language Pathology, General Clinical Emphasis
Courses listed under 1 and 2.
3.215 Stuttering 2 s.h.
3.212 Voice Disorders 3 s.h.
3.255 Neurolinguistics 3 s.h.
3.227 Civil Palate and Related Disorders 2 s.h.
Additional practicum, research, and elective courses.

3. Speech-Language Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools
Courses listed under 1 and 2:
78:104 Remedial Methods in Speech and Hearing 2 s.h.
78:192 Laboratory Practice in Elementary School 6 s.h.
Additional practicum, research, and elective courses.

4. Audiology, General Clinical Emphasis
Courses listed under 1, 2, 3.
3.120 Fundamentals of Laboratory Instrumentation 3 s.h.
3.340 Communication Aids 1 s.h.
3.240 Clinical Audiology and Hearing Aids 4 s.h.
3.361 Advanced Audiology 3 s.h.
3.242 Clinical Audiology and Hearing Aids II 4 s.h.
3.154 Audiological Procedures for Special Populations 3 s.h.
Additional practicum, research, and elective courses.

5. Audiology, School Hearing Clinician
Courses listed under 1, 2, and 4:
78:194 Remedial Methods in Speech and Hearing 2 s.h.
78:197 Laboratory Practice in Elementary School 3-5 s.h.
Additional practicum, research, and elective courses.

Requirements for Employment
A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in locations other than the public schools. Students who meet the requirements listed above for the M.A. degree with professional emphasis also meet the academic requirements for the license in Iowa, as well as to most other states.

Students preparing for clinical positions in public schools must meet the certification requirements of the states in which they plan to work. Completion of the following courses, in addition to those listed under 3 or 5 above, will also satisfy the certification requirements of Iowa and most other states.

73:170 Human Relations for the Classroom Teacher 3 s.h.
Education electives 8 s.h.

Doctor of Philosophy
The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in communication processes and their disorders. Students with diverse backgrounds are encouraged to apply and develop their work in an atmosphere of interdisciplinary research.

The program reflects the broad interests and diverse backgrounds of the faculty. Workers in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering are solicited 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 the field of 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 are no required courses for the Ph.D. degree; rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is designed from the courses offered in the department, and in other areas such as physics, engineering, psychology, mathematics, statistics, physiology, neurology, anatomy, and others, and special reading and research experiences.

The programs offered by this department are registered primarily for the Ph.D. student. This implies that the comprehensive exam, specific areas of research and the seminars, and some of the specialization courses of the faculty are encouraged the student to write the dissertation or thesis.
Admission and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments that supplement those specified by the Graduate College. A brief summary of some of the requirements is presented below. More detailed information is available from the department chair.

Application Form

All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the departmental information form, which can be obtained from the department chair.

Admission to the M.A. Program

The department bases M.A. admission on the applicant's credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.0 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.0.

Completed applications must be received no later than February 1 for enrollment in the fall semester. Late applications will be considered only in special circumstances and only if they are received no later than the preceding November 1.

Admission to the Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which application is made, approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admission application must be filed by the deadline for appointment applications specified below. Applicants usually will be notified of action on their admission within six weeks after their applications are complete.

Application for Graduate Appointments

The following information applies to all financial appointments administered by the department:

Graduate appointments usually begin only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.

Scores on the Graduate Record Examination (GRE) Aptitude Test are routinely required for consideration for financial assistance.

Applications must be received by February 1 to ensure consideration for an appointment beginning the following fall semester.

Initial appointment dates are generally made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training programs offered by the department are conducted in a wide variety of clinical facilities. These clinical facilities are located in the University of Iowa Speech and Hearing Clinic, the University of Iowa Children's Hospital, the University of Iowa Hospitals and Clinics, and the Iowa City Community Hospital. The clinical facilities are staffed by full-time clinical faculty members, graduate students, and support staff. The clinical facilities are located in the same building as the Department of Speech Pathology and Audiology, and are accessible to students and faculty members.

Research Facilities

The Department of Speech Pathology and Audiology has access to a wide variety of clinical facilities, including audiology laboratories, speechaudiology laboratories, and a speech laboratory. The department also has access to a wide variety of equipment, including a hearing screening center, a speech laboratory, and a audiograms.

Courses

3102 Speech Pathology and Audiology

This course provides an introduction to the study of speech and hearing disorders. The course is offered in the fall semester and is open to all students. The course is taught by a speech pathologist and is worth 3.0 credit hours.

3102H Speech Pathology and Audiology Honors

This course is designed for students who have completed the General Education Program and have completed a minimum of 12 hours of speech and hearing disorders.

3102A Speech Pathology and Audiology Advanced

This course is designed for students who have completed the General Education Program and have completed a minimum of 12 hours of speech and hearing disorders. The course is worth 3.0 credit hours.

3102B Speech Pathology and Audiology Special Topics

This course is designed for students who have completed the General Education Program and have completed a minimum of 12 hours of speech and hearing disorders. The course is worth 3.0 credit hours.

3102C Speech Pathology and Audiology Independent Study

This course is designed for students who have completed the General Education Program and have completed a minimum of 12 hours of speech and hearing disorders. The course is worth 3.0 credit hours.
Auditions

Auditions for departmental productions occur once a semester. Audition materials and information can be picked up at the arts office, room 107 Theatre Building, at the end of each semester and during registration.

Degree Requirements

The following courses comprise the basic experience for all undergraduate theatre majors. Students who can demonstrate readiness/proficiency for higher level work may seek permission for advanced standing by notifying their advisor. It is the responsibility of faculty in each interest area to set their own criteria for evaluation and to determine the student's qualification for advanced standing. Students who want to be considered for special emphasis programs must seek the guidance of the undergraduate program chair.

Transfer Students

Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate the basic requirements of the theatre department and the University before they may undertake advanced level electives or seek admission to a special emphasis program.

Minimum Placement Requirements (required of all theatre arts majors)

491 Art of the Theatre 3 s.h.
492 Acting I 3 s.h.
494:410 Stagecraft/Practicum 3 s.h.
494:414 Play Script Analysis 3 s.h.
495:418 Freshman Production 1 s.h.
495 Production 3 s.h.
495:416 Theatre History 1 s.h.
495:410 Theatre History II 3 s.h.
Any two dramatic literature courses 6 s.h.

Special Emphasis Program Requirements:

Acting Emphasis:
492 Acting II 3 s.h.
493 Acting III 3 s.h.
494:418 Vocs for the Actor 3 s.h.
494:416 Movement for the Actor 3 s.h.
494:415 Stage Makeup 3 s.h.

Directing Emphasis:
497 Directing I 3 s.h.
497 Directing II 3 s.h.
497:412 Elements of Design 3 s.h.
497:422 Acting II 3 s.h.
497:414 Contemporary Theatre 3 s.h.
497:416 Movement for the Actor 3 s.h.
497 Playwriting: The Dramatist 3 s.h.

Playwriting Emphasis:
In addition to the minimum requirements

for theatre arts majors, the following are required:
495 Basic Playwriting 3 s.h.
495:417 Advanced Playwriting 3 s.h.
495:418 Elements of Design 3 s.h.
495:422 Acting II 3 s.h.
497:416 Movement for the Actor 3 s.h.

Graduate Program

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical design, costume direction, production management, or art management may apply for admission to the graduate program in acting, directing, or production management by submitting an audition, a portfolio of relevant artistic work, and letters of recommendation. Six semesters in residence and the requisite number of graduate credits in the individual programs are required. Students must reapply for admission each year. Substantive creative work of high quality is expected of all candidates.

Facilities

The University of Iowa has one of the finest educational theatre complexes in the country. The Theatre Building offers three theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Maines Theatre, a continental style, 477-seat proscenium playhouse, is one of the finest small theatres of its type in the United States. Theatre A is an intimate 200-seat "black box" production space. Eleven movable scenic units allow quick modification of space and audience relationship. Theatre II, a fixed-seat, end-stage theatre, seats 140. This small studio theatre is designed for modern productions that do not emphasize technical complexity. All three theatres are equipped with mainstage and art electronic lighting control and sound reproduction systems.

In addition to special classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The "movement room" is for study of human movement and motion by acting students. The "intelligent classroom" is equipped with instructional resources such as videotape, laser disc, closed circuit and cable television, audio systems, and computer information retrieval systems. The Anne Gillett Design Studio, named for the UI's most prominent theatre design and costume former head of Iowa's theatre program, serves as both classroom and studio workshop for fine tuning technical and design students. This studio features the latest professional-quality, computer-assisted design programs.

To support its continual production schedules and to provide students with an appropriate range of experience, the department maintains several shops for building, painting, maintenance, and storing scenery, costumes, and properties. Using these shops, students learn to teamwork and on a professional level. Theatre Building facilities also expose students to the rapidly expanding field of multi-channel sound systems.

Courses

Primarily for Undergraduates

490:400 Cooperative Education Internship 3 s.h.
491:401 Art of the Theatre 3 s.h.
Beginning acting for students with special interest in theatre, extensive instruction in improvisation, play production, vocal, dance, scenic design, technical theatre, and acting. Configurations include a production or recitation presentation.
491:402 Shakespeare 3 s.h.
491:403 Acting I 3 s.h.
491:404 Acting II 3 s.h.
491:405 Acting III 3 s.h.
491:406 Acting IV 3 s.h.
491:407 Acting V 3 s.h.
491:408 Acting VI 3 s.h.
491:409 Acting VII 3 s.h.
491:410 Acting VIII 3 s.h.
491:411 Acting IX 3 s.h.
491:412 Acting X 3 s.h.
491:413 Acting XI 3 s.h.
491:414 Acting XII 3 s.h.
491:415 Acting XIII 3 s.h.
491:416 Acting XIV 3 s.h.
491:417 Acting XV 3 s.h.
491:418 Acting XVI 3 s.h.
491:419 Acting XVII 3 s.h.
491:420 Acting XVIII 3 s.h.
491:421 Acting XIX 3 s.h.
491:422 Acting XX 3 s.h.
491:423 Acting XXI 3 s.h.
491:424 Acting XXII 3 s.h.
491:425 Acting XXIII 3 s.h.
491:426 Acting XXIV 3 s.h.
491:427 Acting XXV 3 s.h.
491:428 Acting XXVI 3 s.h.
491:429 Acting XXVII 3 s.h.
491:430 Acting XXVIII 3 s.h.
491:431 Acting XXIX 3 s.h.
491:432 Acting XXX 3 s.h.
491:433 Acting XXXI 3 s.h.
491:434 Acting XXXII 3 s.h.
491:435 Acting XXXIII 3 s.h.
491:436 Acting XXXIV 3 s.h.
491:437 Acting XXXV 3 s.h.
491:438 Acting XXXVI 3 s.h.
491:439 Acting XXXVII 3 s.h.
491:440 Acting XXXVIII 3 s.h.
491:441 Acting XXXIX 3 s.h.
491:442 Acting XL 3 s.h.
491:443 Acting XLI 3 s.h.
491:444 Acting XLII 3 s.h.
491:445 Acting XLIII 3 s.h.
491:446 Acting XLIV 3 s.h.
491:447 Acting XLV 3 s.h.
491:448 Acting XLVI 3 s.h.
491:449 Acting XLVII 3 s.h.
491:450 Acting XLVIII 3 s.h.
491:451 Acting XLIX 3 s.h.
491:452 Acting L 3 s.h.
participate in an interdisciplin- 

Second Semester 

53:163 Transportation Systems Analysis 3 s.h.
102:261 Problems in Transportation and Land Use 3 s.h. 
44:326 Travel Demand Modelling 3 s.h. 

One of the following courses: 

53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h. 
Statistical Planning Elective 3 s.h. 
Transportation Course 3 s.h. 

Third Semester (nominally summer) 

53:199 Individual Investigations: Civil and Environmental Engineering 3 s.h. 
53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h. 
Technical Elective 3 s.h. 

Technical electives are advanced courses in engineering operations research, computer-aided design, or economics. Specific course requirements are sufficiently flexible to conform to a student's graduation schedule and desired area of specialization. Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering. 

Geography 

The Department of Geography offers the M.A. and Ph.D. degrees with a specialization in transportation systems analysis. The transportation specialty draws from the resources of the College of Engineering, the Department of Economics, and the Department of Geography in Urban and Regional Planning. The Ph.D. degree typically involves 72 semester hours beyond the B.S., of which up to 12 semester hours may be given for dissertation research. A minimum of one year of campus residence is required. 

Individuals with degrees in transportation-related disciplines as well as in Civil Engineering are encouraged to apply. Depending upon a student's background, it may be necessary to complete courses in statistics, computer programming, simulation, mathematics, and operations research, without direct course credit to the degree program. 

A typical master's level program includes the following courses: 

First Semester 

53:262 Urban Transportation Planning 3 s.h. 
102:260 Transportation Policy and Planning 3 s.h. 
44:124 Methods of Transportation Analysis 3 s.h. 
102:269 Transportation Program Seminar 1 s.h. 
Technical Elective 3 s.h. 

5.183 Statistical Methods in Development and Location Theory and Analysis 3 s.h. 
44:201 Geographical Analysis I 3 s.h. 
44:200 Research Seminar: Staff 1 s.h. 

Second Semester 

53:114 Methods of Quantitative Economics 3 s.h. 
102:261 Problems in Transportation and Land Use 3 s.h. 
44:202 Geographical Analysis II 2 s.h. 
44:150 Research Seminar: Staff 1 s.h. 

Third Semester 

53:200 Microeconomics I 3 s.h. 
33:202 Urban Transportation Planning 3 s.h. 
44:134 Methods of Transportation Analysis 3 s.h. 
44:260 Research Seminar: Staff 1 s.h. 

Fourth Semester 

44:226 Travel Demand Modelling 3 s.h. 
36:170 Deterministic Operations Research 3 s.h. 
44:205 Regional Development: Policy and Planning I 3 s.h. 

Ph.D. students, in addition to taking the courses recommended for master's students, are strongly encouraged to take advanced courses in areas such as economics, operations research, regional development, and policy analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation. Applications should be made through the Graduate College and the Department of Geography. 

Urban and Regional Planning 

The Graduate Program in Urban and Regional Planning offers the M.A. or M.S. degree with a sectoral major in transportation. Students complete an integrated core curriculum during the first year, the core consisting of courses in planning economics and public finance, analytic methods, planning theory, and collective decision making, law, and information presentation. The second year is devoted to a sectoral major, such as transportation, wherein core concepts are applied to a chosen area of specialization. 

The planning curriculum is intended to provide students with the capability to examine policy issues in transportation, devise workable options, evaluate these options, and work toward implementation of policy solutions. 

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by
the core; the sectional major constitutes a minimum of 9 semester hours; and electives are taken to complete the remaining hours. If the thesis option is selected, up to 6 semester hours of sectional major credit are awarded. Students may elect to complete an additional 2 semester hours of course work in lieu of an internship. Bringing the total to 50 semester hours.

A typical transportation sectoral major program includes the following courses:

**First and Second Semesters**

Core Courses (See "Urban and Regional Planning")

**Third Semester**

102:215 Field Problems in Planning 3 s.h.
102:369 Transportation Policy and Planning 3 s.h.
102:369 Transportation Planning Seminar 1 s.h.

Two of the following courses:

44:194 Methods of Transportation Analysis 3 s.h.
50:362 Urban Transportation Planning 3 s.h.
Planning Elective 3 s.h.

**Fourth Semester**

102:361 Problems in Transportation and Land Use 3 s.h.

Three of the following courses:

102:265 Transportation Regulation and Analysis 1 s.h.
53:163 Transportation Systems Analysis 3 s.h.
44:236 Travel Demand Modeling 3 s.h.
Planning Elective 3 s.h.

Which of the optional transportation courses a student selects depends on individual interest. Elective courses typically selected include:

102:254 Project Impact Analysis 3 s.h.
102:290 Capital Facilities Planning and Finance 3 s.h.
102:245 Energy and Public Utility Planning and Policy 3 s.h.
102:295 Regional Development: Policy and Planning I 3 s.h.
102:266 Development Finance 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

**Curriculum Structure**

The planning curriculum comprises a 48-semester-hour core, a 6-semester-hour master's (plus internship) program encompassing two academic years. This includes 27 semester hours of core courses, 9 semester hours of sectional major work, and 12 semester hours of free electives. The curriculum is based on the general principles that planners must develop the theoretical and analytical skills that permit them to identify issues and recommend alternative ways for resolving these issues, as well as the professional skills (e.g., report writing, presentations and briefings, team management) that allow them to function effectively in various organizations and political settings. Students thus become well-versed in topics such as economic theory, quantitative methods, information presentation techniques, and approaches to citizen involvement.

**Core Curriculum**

At the heart of The University of Iowa planning program is a unique and integrated core curriculum, which occupies the first academic year. Its purpose is to provide a rigorous foundation for analyzing social problems and public policies.

The function of the core is to develop an understanding of the institutions—the social, economic, political, administrative, and legal systems—that provide the context for public policy and contain public choices; a capability for identifying social goals and normative criteria for evaluating public policies; and analytic skills—both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and qualitative—that, in total, the core accounts for 27 semester hours.

Courses in the core curriculum are as follows:

**First Semester**

102:203 History and Theories of Planning 3 s.h.
102:209 Economics for Policy Analysis 3 s.h.
102:208 Planning Law and Legislation 3 s.h.
102:210 Introduction to Analytic Methods 3 s.h.

**Second Semester**

102:204 Collective Decision Making 3 s.h.
102:206 Economics for Policy Analysis 2 s.h.
102:211 Intermediate Analytic Methods 3 s.h.
102:209 International Perspectives 2 s.h.

**Third Semester**

102:215 Field Problems in Planning 3 s.h.

Courses in the first semester are derived primarily from traditional disciplines (law, economics, statistics) together with an introduction to the theories and practice of planning. Later courses teach students to select and evaluate information and to develop a critical judgment and insight in the application of theory through realistic planning problems and actual case studies. Students may request a waiver of any core course on the basis of previous work.
The second year of the program is directed toward developing an area of concentration, the sectoral major, building on the concepts and skills developed in the core by applying them to a specific production area. Students fulfill the sectoral major requirement by completing 6 semester hours of credit in courses offered in the program and by other departments and schools of the University. Currently, there are five sectoral majors supported by course offerings and faculty within the planning programs—transportation, housing and community development, environmental planning, infrastructure planning, and economic development. Other sectoral majors can be designed by the student, subject to faculty approval. For example, a student can major in health services planning with appropriate course work in the departments of Hospital and Health Administration or Preventive Medicine and Environmental Health, or in human services planning with courses in the School of Social Work. Other sectoral majors that students have developed include land use, public utility and energy planning, urban management, and historic preservation.

The balance between core courses, a sectoral major, and elective courses allows students the opportunity to acquire a rigorous and sound foundation for policy planning, specialized knowledge in enhance entry-level employment prospects, and exposure to specialties within the planning field.

Other Requirements
The master's final examination requirement is satisfied through the submission and approval of a portfolio. The portfolio consists of a set of papers and project reports that demonstrates an understanding of fundamental concepts and the core; application of core concepts to the students' own intellectual and professional knowledge of issues, institutions, and policies. The requirement is generally made up of revised and polished versions of research papers and project reports for courses. The portfolio must be approved by a final exam committee consisting of three faculty members.

A thesis is not required, although a student may petition to write one. Students may register for up to 8 semester hours of thesis credit. In addition, up to 4 semester hours of readings may be taken to develop a thesis topic and prepare a literature review. Three of the readings hours may be applied towards the sectoral major requirement, and the thesis substitutes for the internship.

Students are encouraged to complete an internship in a planning or related agency or organization and to submit a brief paper summarizing and evaluating the experience. Internships usually are completed during the summer. Program faculty take an active role in helping students secure these internships. Alternatively, students may elect to complete an additional 2 semester hours of credit, bringing the total to 56 semester hours.

Joint Programs

Law
The Urban and Regional Planning Program and the College of Law cooperate in administering a program that satisfies the degree requirements leading to an M.A. in planning and a J.D. in law. The program requires four years to complete (or less if the student chooses the accelerated law program). This is a reduction of one academic year from the total requirements of the two programs taken separately. Separate admission to each academic unit is required.

Engineering
A special program involving the College of Engineering and the Urban and Regional Planning Program enables a student to acquire a B.S. in engineering and an M.A. in planning in a total of five academic years. In this accelerated program, course work is reduced by one academic year from the separate requirements for the two degrees. Admission to the special program can be applied for by undergraduate students in engineering.

Preventive Medicine and Environmental Health
A joint master's degree option exists between the Urban and Regional Planning Program and the Department of Preventive Medicine in Environmental Health in the College of Medicine. The option results in an M.A. in planning and an M.S. in Preventive Medicine and Environmental Health. A total of 60 to 62 semester hours of credit is required; the two degrees generally can be earned in two and one-half years. Separate admission to each academic unit is required.

Hospital and Health Administration
Students seriously interested in health planning may wish to enroll in a joint program between the Urban and Regional Planning Program and the Department of Hospital and Health Administration in the College of Medicine. This three-year program leads to an M.A. in planning and an M.A. in hospital and health administration. Course work is reduced by one year from the separate requirements of the two programs. Separate admission to each academic unit is required.

Economics
Students specializing in economic development, public utility planning, state fiscal analysis and planning, or other areas may wish to strengthen their training in economics by enrolling in the joint program with the Department of Economics. The program requires a total of 60 to 62 semester hours of credit and can be completed in five years. Students earn an M.A. in planning and an M.A. in economics.

Social Work
For those interested in a career in social service delivery or human services planning, a joint program is offered between urban and regional planning and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. A total of 64 semester hours is required for the two degrees, a reduction of 24 semester hours from the requirements of the two programs taken separately. It is possible to complete this program in three years, although some students may require an additional semester. Separate admission to each academic unit is required.

Transportation
The transportation research and training program is offered through the Center for Transportation Studies, administered through the Urban and Regional Planning Program. A transportation certificate is awarded to students who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in urban and regional planning, engineering, and management. This certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. For more information see "Transportation Studies" in this section of the Catalog.

Financial Aid
Students in the Urban and Regional Planning Program may receive financial support through a variety of sources and arrangements: tuition scholarships, program teaching or research assistantships, contract or grant-funded research assistantships, and internships in local and state agencies. These scholarships typically require 10 hours of work per week under the direction of a faculty member or professional planning staff. Students indicate applications for financial support, and awards are made on the basis of merit, experience, and interest. The program has been successful in providing support to most students.

Admission
Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration.
MINOR

Undergraduate students may complete a minor in Women's Studies by taking 15 semester hours of departmental courses associated with the program, including at least 12 semester hours taken at The University of Iowa in 100-level courses, and maintaining a 2.0 grade-point average in departmental courses.

It is strongly recommended that students concentrating a minor in Women's Studies, including the optional semester hours associated with it.

Graduate Study

Graduate students in master's or doctoral programs may choose a comprehensive area in Women's Studies within existing disciplines. Graduate students who want to pursue the Ph.D. in Women's Studies should file a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College. Students first must be granted admission by a department of the University.

Information on faculty members in various departments who direct graduate study is available from the Women's Studies Program, 365 English Philosophy Building.

Associated Courses

The departmental courses listed below are associated with the Women's Studies Program and may be applied toward a concentration or a minor in Women's Studies.

In addition to the following courses, many departments sometimes offer additional courses focusing on women. Women's Studies courses for University credit also are offered by the Saturday and Evening Class Program and by Guided Correspondence Study.

African-American World Studies

129:120 Images of Black Women in Modern American Fiction

129:127 Black Women Writers

American Studies

45:4 Family and Sex Roles

45:7 Sex, Race, and Ethnicity

Communication Studies

364:137 Sex Roles and Communication

Counselor Education

7C:112 Human Sexuality

7C:150 Psychological Aspects of Women's and Men's Roles

7C:162 Introduction to Marriage and Family Counseling and Psychotherapy

7C:218 Group Leadership in Human Sexuality

History

Women Economics

Politics, Communities, and Culture (general education course)

Women, Politics, and Society (general education course)

European Society in Europe 1450-1750

European Society and Gender in Europe 1750-1950

Women in European History

Seminar History of American Women

Women's Studies Program, 365 English Philosophy Building
Courses

Core Courses

120.110 Introduction to Women’s Studies 3.0 a.b. Introductions to important interdisciplinary study of women’s lives, including work, family, sexuality, political and social change, race, class, and cultural traditions.

120.150 Topics in Women’s Studies 3.0 a.b. Topics vary, may be repeated with consent of instructor.

120.151 Feminist Theory 3.0 a.b. Survey of historical and contemporary feminist scholarship, with emphasis on race, class, sexuality, and social change. Maintains a variety of theoretical approaches and political perspectives, major cases, and controversies.

120.155 Independent Reading and Research in Women’s Studies 1.0 a.b. Supervised reading and research in women’s studies. On a right, on consent of regular instructor.

Cross-listed courses

120.3 Women in American Culture 3.0 a.b. Topics include feminist women in America, women and war and peace, women and the economy, women and work, women’s popular culture, and labor laws and culture. Same as 120.115.

120.115 Total World Woman and Literature 3.0 a.b. Course of planned Three World Women are explored through their creative works in an attempt to understand the complexity of their oppression and their heroic struggle against racism, classism, and sexism. Same as 120.115.

120.162 Physiological Research on Women in Sport 2.0 a.b. Physiological capabilities, responses to training, and lecture specific to pregnancy, child bearing and gender-related injuries. Same as 230.502.

120.163 Women and Society 3.0 a.b. Examinations of the role and status of women in society, an awareness of role socialization, location of origin and maintenance of sexual inequalities, changes in social life styles of women, and legislation with respect to social injustices and pressures; focus on contemporary United States. Same as 30.19.

120.165 Religious and Women 3.0 a.b. The study of women and its relation to biblical narrative, law, wisdom text, Gospels, and epistles, contemporary impact. Same as 220.11.

120.166 Black Women in America 3.0 a.b. Women of Black women in American society, relationships between stereotypes and actual roles. Same as 120.166.

120.167 The Sciences and Film 3.0 a.b. Survey primarily American films from 1950s to 1970s. Centers on the female image of the sciences and how these images relate to science. Same as 220.166.

120.168 Sociology of Women in Sport 3.0 a.b. Focus on analysis of girls’ and women’s sport experiences, including sociological sport, gender role construction through sport, social change in women’s sport, ethnicity, gender portrayals of women in sport, and feminist alternatives to sport. Same as 220.166.

120.169 Women’s Roles: Cross Cultural Perspectives 3.0 a.b. Social, economic, and political roles of women around the world, an analysis of sex roles, with emphasis on culture change. Same as 220.166.

120.170 Regional Women Writers 3.0 a.b. Same as 220.11.

120.171 Women in Literature 3.0 a.b. Same as 220.11.

120.172 Women’s and Modes in Literature by Women 3.0 a.b. Same as 220.11.

120.173 Economic and Political Development of Women 3.0 a.b. Economic development for women in Latin America, Africa, Asia, and Asia and middle eastern women. Economic development is used as both economic and political development of women in contemporary social change. Same as 120.170, 360.166.

120.174 Changing Conceptions of Women in Societies 3.0 a.b. Same as 220.11.

120.211 Women in America: Colonial Period to 1890 3.0 a.b. American women through women’s eyes, evaluating interactions of biology, economics, politics, and ideology. Incorporates social and political changes, economic, social, and educational patterns. Emphasis today on a history of women in their own terms. Same as 120.170.

120.212 Women in America: 1870-1970 3.0 a.b. Emphasis through American women’s eyes, evaluating interactions of biology, economics, politics, and ideology. Incorporates social and political changes, economic, social, and educational patterns. Emphasis today on a history of women in their own terms. Same as 120.170.

120.213 Poetry by Women Writers 3.0 a.b. Same as 120.115.

120.214 Prose by Women Writers: The Essay 3.0 a.b. Survey of prose writing. Emphasis on cultural essays, essays on social, on theoretical essays, on political essays, and essays on personal essays. Same as 120.170.

120.215 History of Women in Culture 3.0 a.b. Emphasis on cultural and intellectual traditions. Same as 120.170.

120.216 Women’s Literature and Culture 3.0 a.b. Same as 120.115.

120.217 The Cultures of America Women 3.0 a.b. Emphasis on the diversity of women’s experience in America, emphasizing relationship between individual lives and broad social and cultural context. Same as 120.170.

120.218 Women and Therapy 3.0 a.b. Emphasis on therapy and psychological therapies that affect treatment of female clients in therapy. Same as 120.170.

120.219 History of Women in Sports 3.0 a.b. Same as 120.170.

120.220 Feminist Criticism 3.0 a.b. Emphasis on feminist criticism, exploring prehistory, performance, transmission, text and context, and challenges to other theoretical models. Same as 120.170.

120.221 Elizabethan Women 3.0 a.b. Same as 120.170.

120.222 Women and Social Change: 3.0 a.b. Emphasis on the impact of social change, both material and ideological, that have changed women’s lives on the economy and society, both internationally and domestically. Emphasis on social and economic change. Same as 120.170.

Women’s Studies/LIBERAL ARTS 239
# College of Business Administration

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Dean: George Daly  
Senior associate dean: William L. Berry  
Associate deans: William P. Acker; Steven M. Bort; Richard G. Peck  
Assistant dean: Bryan P. Martin, Jr.  
Degrees offered: B.B.A., M.B.A., M.A., Ph.D.
The College of Business Administration is organized into six academic departments: accounting, economics, finance, industrial relations and human resources, management sciences, and marketing.

The undergraduate and graduate programs of the college are accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the external agencies of the college: Industrial Relations Institute, Institute for Economic Research, Institute for Insurance Education and Research, Labor Center, Management Center, and Small Business Development Center.

Undergraduate Program

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all six departments. B.B.A. students complete background studies either in the College of Liberal Arts at The University of Iowa or at 40 other institutions, and usually enter the College of Business Administration as a junior.

The college’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 26 semester hours in business courses and at least 48 semester hours in non-business courses. Limited specialization is offered through the student’s designated major.

The last 30 (or 45 of the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration and at least 9 semester hours of credit in the student’s major must be earned at The University of Iowa.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all course work, in all course work attempted at the University, in all business course work attempted, in all business course work attempted at the University, in all course work attempted in the major, and in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetoric 101 or 102, or 103 8 s.h.
- 22M:17 and 22B:4 Quantitative Methods I and II or 22M:25, 22M:26 and 22B:120 6 s.h.
- 6E:1 Principles of Microeconomics 3 s.h.
- 6E:2 Principles of Macroeconomics 3 s.h.

**Production Management, for 6L:100 Administrative Management.**

**Minors**

**Non-Business Minors**

An undergraduate student in the College of Business administration may elect to complete a minor in another college of the University. For example, a student interested in international business might choose a foreign language as a minor. For the minor requirements, the student should consult with an advisor in the relevant department. To have the minor recorded on his or her transcript, the student must complete the "minor" section on the B.B.A. degree application form before submitting it to the Registrar.

**Business Minors**

Students majoring in another college of the University may elect a minor in business administration. The courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed at The University of Iowa. A grade-point average of at least 2.0 is required on all courses taken for the minor and on all of these courses taken at Iowa.

- A computer programming course (22M:11, 22M:25, or 22M:33) 3 s.h.
- Statistical Methods (22B:8 or 22B:10) 3 s.h.
- 6E:1 Principles of Microeconomics 3 s.h.
- 6E:2 Principles of Macroeconomics 3 s.h.
- 6A:1 Introduction to Financial Accounting 3 s.h.
- 6A:2 Introduction to Managerial Cost Accounting 3 s.h.
- 6E:100 Introduction to Marketing Management 3 s.h.
- 6L:100 Administrative Management 3 s.h.
- 6L:47 Introduction to Law 3 s.h.

*Must be taken in junior or senior year

A student who will have completed all requirements for the minor in business administration should indicate a business minor on the application for degree card, which is filed in the Registrar’s Office in the student’s final semester.

**Recognition for Academic Achievement**

**Dean’s List**

Students who achieve grade-point averages of 3.5 or above during a given semester are selected for inclusion on the dean’s list for that semester.
President's List
Students earning a 4.0 grade-point average for two consecutive semesters (exclusive of summer sessions) at least 12 or more semester hours of graded work of the two semesters who have no hours of 1.0 or more semesters' work recognized by inclusion on the President's List.

Honors
The College of Business Administration Honors Program provides outstanding students in the college the opportunity to undertake advanced work and independent study in their majors and to work closely with faculty and other honors students. Its purpose is to challenge superior students to reach their academic potential. Freshmen may take specially designed sections of the introductory accounting and economics courses. Each department offers students a variety of options for undertaking honors work in the major. There is also a college-wide honors seminar to which all juniors and seniors in the program participate. Successful completion of departmental and college requirements leads to a Bachelor of Business Administration "with honors" (see below).

Prebusiness students interested in the Honors Program are encouraged to participate in the College of Liberal Arts Honors Program until they are admitted to the College of Business Administration. This will permit them to take advantage of the honors courses offered in the Honors College, House Honors Center, and also they are encouraged to take courses in the Iowa Honors Sqqeurs, which plans a variety of social and cultural activities each year. Students should apply for admission to the College of Business Administration Honors Program when they apply for admission to the college, and they may apply no later than the end of the fifth week of the fall semester. For additional information students should contact the Academic Programs Office, 121 Phillips Hall.

Graduation Honors
High scholastic achievement is recognized upon graduation in two ways: graduation with distinction based upon grades only, and graduation with honors in a particular field based on grades and the completion of special work as outlined by the college and the major department.

To be eligible for either form of recognition, the student must complete the final 40 semester hours in residence as an undergraduate college at the University of Iowa, of which at least 45 semester hours must have been completed prior to the student's final registration. 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 prior to their final registration.

Admission
The college admission standards are set by the undergraduate program committee. The college normally admits undergraduate students at the beginning of their junior year. Students are eligible for admission to the college after they have completed 56 semester hours and have satisfied the common requirements in quantitative methods, accounting, and economics with a grade-point average of at least 2.25 on the courses used to satisfy these requirements, on all college-level courses taken, and on all courses undertaken at The University of Iowa. Fulfillment of the minimum requirements does not ensure admission, since these standards may be changed as necessary in order to keep the student enrollments in line with available educational resources.

No more than 60 semester hours or equivalent of transfer credit will be accepted for a student transferring from a two-year institution. Transfer credit for business courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered as lower-division courses at The University of Iowa.

Credit by Examination
Students may earn up to 12 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) of the College Entrance Examination Board are used. It is possible to receive credit for some of the common requirements of the college, if the CLEP examinations are available from the Liberal Arts Office of Academic Programs.

Maximum Schedule
Course schedules of more than 18 semester hours for a semester or 36 semester hours for a summer session require approval of the dean.

Adding and Dropping Courses
Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with the approval of the advisor and instructor. Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with the approval of the advisor and instructor. A student must seek the approval of the dean in order to add or drop a course after these deadlines.

Undergraduates will receive the mark of W for any course dropped after the third week of the semester or first one and one-half weeks of the summer session.

Pass-Nonpass
Of the total semester hours required for a B.B.A. degree, up to 16 can be pass or pass-nonpass basis with the consent of the advisor and instructor. However, a student may not count more than 8 semester hours of pass-nonpass credit in the last 60 semester hours of course work. A student must be in good academic standing to be eligible for the pass-nonpass option, and the maximum of two pass-nonpass courses may be taken in one semester.

Courses that are taken to satisfy the common business requirements may not be taken pass-nonpass, only courses in the student's major. Pass-nonpass registration must be completed during the first three weeks of a semester or the first two weeks of a summer session. For courses taken on a pass-nonpass basis, an earned grade of C or above is recorded as a P, an earned grade of D or F is recorded as an N.

Second-Grade-Only Option
A student may elect to repeat a course with only the new grade being computed into his or her grade-point average. This option can be elected only prior to the time of completion of a course for which the repeated course is prerequisite. This may be applied to a maximum of 16 semester hours of work and may be used only once per course.

Students who want to use this rule should:
Register in the usual manner for the course he or she desires to take or add it during the regular period for adding courses (the first three weeks of the fall and spring semesters).
Fill out the necessary form in the Academic Programs Office, College of Business Administration, 121 Phillips Hall.
Submit the form by the end of the third week of the semester (or first one and one-half weeks of the summer session). Liberal Arts prebusiness majors must adhere to second-grade-only option procedures and deadlines set by the Liberal Arts Office of Academic Programs, 115 Schaeffer Hall.
Under the provisions of this option, the registrar will mark the permanent record to show that a particular course has been repeated. Both grades will remain on the permanent record, but only the second one will be used in calculating the grade-point average.

Current procedures of counting both grades in instances where the student repeats a course will be continued unless the student follows the above procedure.

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.
Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Arts (M.A.) in business administration, Master of Business Administration (M.B.A.), and Doctor of Philosophy (Ph.D.) in business administration. Joint degree options allow M.A. in business administration or M.B.A. candidates to pursue a second graduate degree in another college. For information on the Master of Arts (M.A.) in accounting, see “Accounting” in this section of the Catalog. For information on graduate programs in economics, see “Economics” in this section of the Catalog.

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed to prepare students for professional administrative careers in the business or public sector. The program enhances the student's career opportunities and provides the commercial and government sectors with the professional personnel required in a complex, modern economy.

The curriculum is designed for college graduates in any field. Previous courses in business are not required for admission. Depending on the student’s undergraduate academic background, 30 to 62 semester hours are required. Any of the eight foundation courses may be waived on the basis of prior experience or equivalent course work of high quality taken as part of an undergraduate degree program. A minimum of 24 semester hours of courses in residence must be completed in residence at the University of Iowa after admission to the M.B.A. program.

Accelerated Professional Track

Highly qualified undergraduate students in the colleges of Liberal Arts or Engineering at The University of Iowa are eligible to be admitted to the Accelerated Professional Track (APT) program toward the M.B.A. degree. These students can take the M.B.A. foundation courses as electives in their undergraduate programs so that they can earn both the bachelor's and M.B.A. degrees in less time than would normally be required. APT students also agree to have a cooperative educational internship in the work world in the program. After earning the bachelor’s degree and beginning full-time graduate study, APT students become eligible for special graduate fellowships sponsored by business firms.

Interested engineering students should have at least two years of engineering study, earned 3.5 grade point average or better, and indicated the intent to pursue both degree programs on a full-time basis. Liberal arts students should have completed at least 60 semester hours of course work in that college with a grade-point average of at least 3.5. Further information on the APT program is available from the Academic Programs Office, 121 Phillips Hall.

Foundation Courses (24 semester hours)

- 6152 Financial Accounting—M.B.A. 3 s.h.
- 6190 Consumer and Firm Behavior 3 s.h.
- 6194 National Income Analysis—M.B.A. 3 s.h.
- 61101 Computer Methods—M.B.A. 3 s.h.
- 61197 Quantitative Methods—M.B.A. 3 s.h.
- 6135 Management of Organizations—M.B.A. 3 s.h.
- 61796 Marketing Management—M.B.A. 3 s.h.

In the M.B.A. integrated core courses, students continue the broad study begun in the sequence of foundation courses listed above and pursue more advanced study associated with their own career objectives. Following are the integrated core course requirements.

Integrated Core (21 semester hours)

- 61198 Society, Law, and Business—M.B.A. 3 s.h.
- 62141 Managerial Accounting—M.B.A. 3 s.h.
- 62261 Administrative Science I—M.B.A. 3 s.h.
- 62655 Administrative Policy—M.B.A. 3 s.h.
- 62255 Administrative Policy—M.B.A. 3 s.h.
- 62271 Statistical Methods—M.B.A. 3 s.h.
- 62273 Managerial Economic Theory—M.B.A. 3 s.h.
- 62276 Operations Research—M.B.A. 3 s.h.

Electives (15 semester hours)

The student's choice of electives must be approved by the Academic Programs Office.

Off-Campus M.B.A.

Courses are offered during evening hours in Cedar Rapids and the Quad Cities. This program is approved jointly by the College of Business Administration and the Division of Continuing Education. In Cedar Rapids, these courses are offered in conjunction with the Continuing Education Association, and in the Quad Cities with the Quad Cities Graduate Study Center in Rock Island, Illinois.

A student pursuing the degree in the evening usually takes one or two courses each semester and completes the program in four to six years. A limited number of M.B.A. courses are offered in Iowa City during the evening.

Executive M.B.A.

A special program, the Executive M.B.A., also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Further information on the program, fees, and application procedures may be obtained by writing to the Academic Programs Office, College of Business Administration.

Master of Arts

The Master of Arts degree program in business administration is designed for students seeking specialization in one of several areas of business administration. It permits a research emphasis that qualifies students for research or teaching positions or employment in business.

The program is available with or without thesis and is flexible, permitting specialization according to students’ interests and objectives. Students may select a major in administrative studies, finance, industrial relations and human resources, insurance, management information systems. The minor may be developed in any appropriate combination within the College of Business Administration or from outside the college.

All students in the M.A. program must satisfy the common body of knowledge requirement of the American Assembly of Collegiate Schools of Business (AACSB). This means that candidates’ undergraduate or graduate coursework must include study in accounting, quantitative methods, organizational behavior, management information systems, finance, marketing, and one economic and two legal or societal courses to profit or nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

- Major area 9 s.h.
- Minor area 6 s.h.
- Economic theory and/or organizational behavior 6 s.h.
- Electives 6 s.h.
- Thesis 3 s.h.
- Total 30 s.h.

Requirements for the Master of Arts degree without thesis include:

- Major area 12 s.h.
- Electives 6 s.h.
- Economic theory and/or organizational behavior 6 s.h.
- Total 35 s.h.
quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

Core Courses
Core courses are designed to develop competence in research and provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (1 semester hour), economics (6 semester hours), issues in scientific inquiry (3 semester hours), and research methods/statistics/quantitative analysis (12 semester hours).

To reflect the background and interests of individual students, doctoral candidates consult with their advisers to establish satisfaction of core requirements.

Major Area of Study
A minimum of 12 semester hours of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resource management, industrial relations, insurance, management science, marketing, or organizational behavior.

Minor Area of Study
A minimum of 9 semester hours of doctoral-level courses beyond the PhD core course requirements must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration.

Comprehensive Examinations
Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is made up of a minimum of three faculty members.

Upon satisfactory completion of the written comprehensive examinations, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is made up of at least five faculty members.

Dissertation
A dissertation proposal must be presented before a forum attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 15 semester hours of dissertation credit. The completion of research and writing associated with the dissertation usually requires one year of full-time effort.

Final Examination
The completed dissertation must be defended in an oral examination attended by the dissertation committee members. It also is open to interested faculty and graduate students.

Admission
Applicants seeking admission to graduate study in business must submit the Graduate College application form and fee, official transcripts of all course work taken, and official Graduate Management Admission Test (GMAT) scores to the Admissions Office, Calvin Hall. Three letters of recommendation from former instructors or employers should be submitted to the Academic Programs Office, College of Business Administration.

Graduate Record Examination (GRE) Aptitude Test scores may be submitted in place of GMAT scores in applications for the PhD program in business administration. See the "Graduate College" section of the Catalog for more information.

Application Information
A graduate application packet may be obtained from the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242.

A complete application file requires the following:
A completed application form and fee submitted to the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242.

Official transcripts of all undergraduate and graduate work submitted to the Admissions Office by each institution attended.

Official Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) scores submitted to the Admissions Office.

At least three references from former instructors or employers submitted to the Academic Programs Office, College of Business Administration, The University of Iowa, Iowa City, Iowa 52242.

Foreign nationals (for whom English is not the primary language) must submit an official score of 550 or more on the Test of English as a Foreign Language (TOEFL).

Application Deadlines
The application deadlines for M.B.A., M.A. in Business Administration, and Ph.D. in Business Administration are as follows.

M.B.A. program (fall and spring entrance only)
March 1—Foreign applicants for fall or spring.
July 1—U.S. citizens and permanent residents applying for fall enrollment.
November 15—U.S. citizens and permanent residents applying for spring enrollment.
M.A. in Accounting and M.A. in Business Administration (summer, fall, and spring entrance)

February 1—Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa.

March 1—Foreign applicants for summer or fall who are not seeking financial assistance from The University of Iowa.

May 1—U.S. citizens and permanent residents applying for summer enrollment.

July 15—U.S. citizens and permanent residents applying for fall enrollment.

October 1—Foreign applicants applying for spring enrollment.

December 1—U.S. citizens and permanent residents applying for spring enrollment.

Ph.D. in Business Administration (summer, fall, and spring entrance)

February 1—Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa.

March 1—Foreign applicants for summer or fall who are not applying for financial assistance from The University of Iowa.

March 1—U.S. citizens and permanent residents applying for summer or fall enrollment. Applications received by February 1 will receive priority in consideration for financial aid.

October 1—Foreign applicants for spring enrollment.

October 6—U.S. citizens and permanent residents applying for spring enrollment.

Joint Programs

Joint programs allow students to pursue concurrently an M.A. or M.B.A. in the College of Business Administration and a J.D. in the College of Law, or an M.A. in Library and Information Science. The School of Library and Information Science. Such programs allow students to earn both degrees more rapidly by counting a portion of their graduate course work toward both degrees. These joint degree programs carry an exchange of 12 semester hours each between the J.D. and the M.B.A. 1 semester hours each between the M.A. in Library and Information Science and the M.B.A.

Other Graduate Programs

M.A. in Accounting

(See "Accounting" in this section of the Catalog.)

M.A. and Ph.D. in Economics

(See "Economics" in this section of the Catalog.)

Facilities

The College of Business Administration is located in Philips Hall, a high-rise building designed especially for programs of the college. The building contains seminar and conference rooms, a computer laboratory, an auditorium, and the Business Library. In addition to a wide range of classroom facilities.

Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the Wieg Computing Center are available to all students. Additionally, students have direct access to a complete computer laboratory within the college. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to service user needs.

Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purposes of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research

The Institute for Economic Research engages in continuing economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The Institute's main objectives are: to provide economic information, service, and advice on a continuous basis to business and to public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for Insurance Education and Research

The Institute for Insurance Education and Research is the college's continuing education arm in the field of insurance. The institute conducts schools and seminars throughout the year at the University of Iowa campus in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

Labor Center

The Labor Center serves as the continuing education division of the college in the areas of labor education. Labor Center staff members have combined on-campus and off-campus programs in order to reach as many people as possible. The staff members target their instruction to the specific needs of the labor movement in Iowa.

Management Center

The Management Center, a major continuing education branch of the college, provides relevant information to management and government representatives in Iowa. Current administrative, behavioral science, and management knowledge related to the working life of people in organizations is disseminated through on- and off-campus conferences.

Small Business Development Center

The Small Business Development Center was created in 1981 to provide management assistance without charge to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and also conducts workshops on topics related to small business management.

Placement Services

The placement needs of the college are served by the Office of Business and Liberal Arts Placement, located in Phillips Hall. A placement media library, student placement counseling activities, and modern interview facilities provide students and recruiting organizations with a full range of placement services.
Alumni Relations
The College maintains an Office of Alumni Relations to act as host during visits from alumni, friends, recruiters, and others interested in the College.

Interdepartmental Courses
For M.B.A. students
See individual department listings for additional M.B.A. courses.

4610 Co-operative Education Internship
M.B.A. 6 s.h.

4611 Winter Consulting Seminar -- M.B.A. 1 s.h.
Writing for business courses.

4612 Oral Communication Skills -- M.B.A. 1 s.h.
One presentation skills for business courses.

Accounting
Head: John H. Smith
Professors: B.R. Barrows, Daniel W. Collins (Assistant Professor), Valden C. Lemanoff, John H. Smith
Associate professors: Douglas V. De Jong, Richard A. Groseth, Albert S. Szczepaniak
Assistant professors: C. Edward Arrington, Joe R. Francis, Thomas L. Langan
Degree offered: B.B.A., M.A., M.B.A., Ph.D.

Professional Program
The Professional Program in Accounting at The University of Iowa is a three-year upper-division and graduate program that leads to a Master of Arts (M.A.) degree with a major field in accounting. (Students receive the B.B.A. degree after successful completion of the first two years of the Professional Program in Accounting.) The M.A. program (three-year program) is designed to help students develop the technical proficiency and the conceptual, analytical, and communication skills required in the accounting profession. Students who wish only undergraduate-level preparation for the Certified Public Accounting (CPA) or Certified Management Accountant (CMA) examinations may meet their goal by completing the first two years of the professional program.

The M.A. program (three-year program) is designed to prepare candidates for careers in all areas of accounting: to help prepare candidates for the CPA and CMA examinations; and to prepare students for demanding leadership roles in the field of accounting. Students may apply for admission to the Professional Program in Accounting after completing the three years of preprofessional study that satisfies the General Education Requirements of the University; the business requirements of the College of Business Administration; and the admission requirements of the accounting department (see program 1 below). Students also may apply for the M.A. program after completing a bachelor's degree with a major field in accounting from another institution (see program 2 below) or after completing a bachelor's degree in a field other than accounting (see program 3 below). Admission information for program 1 may be obtained from the Undergraduate Program Office in the College of Business Administration, or from the head of the accounting department.

Because of the heavy emphasis on oral and written communication in the M.A. in accounting program, foreign nationals whose primary language is not English and whose TOEFL scores are below 600 are rarely admitted.

Students in the first and second year of the professional program must maintain a 3.0 grade-point average overall and in upper-division accounting courses. Students in the third year of the professional program must maintain a 3.0 grade-point average in all graduate-level accounting courses.

Students who do not maintain these minimum grade-point averages are subject to departmental probation and elimination from the Professional Program in Accounting.

As a final condition for completion of the Professional Program in Accounting (three-year program), students must pass an oral examination:

All candidates for the M.A. degree are required to submit a score on the Graduate Management Admission Test (GMAT) as a condition for admission to the third year of the Professional Program in Accounting. All students should consult a current issue of Suggestive Plan of Study, published by the accounting department each semester, for current information regarding admission procedures, program requirements, electives, and optimal course planning.

Program 1
This program is for students completing their pre-professional program at The University of Iowa.

Undergraduate students at The University of Iowa who are eligible for admission to the Professional Program in Accounting after completing 36 semester hours of course work, including the six courses required as prerequisites for admission to the College of Business Administration, (4610 Computer Analysis, and 4611 Statistical Analysis, and lower earning grade in any of 4610 or 4611 Introduction to Financial Accounting and 4612 Managerial Cost Accounting, or the equivalent. Students are designated accounting majors after their applications to the Professional Program in Accounting have been accepted.

After successfully completing the first two years of the Professional Program in Accounting, students receive the B.B.A. in Accounting.

The first, second, and third year requirements of the Professional Program in Accounting are shown below, together with the typical semester in which they are usually taken.

First Year
Fall Semester
4611 Financial Accounting I 3 s.h.
B.B.A. core courses or electives 12 s.h.
Spring Semester
4612 Financial Accounting II 3 s.h.
4615 Introduction to Taxation 3 s.h.
4616 Managerial Decision Models 3 s.h.
B.B.A. requirements or electives 6 s.h.

Second Year
Fall Semester
4630 Cost Accounting for Management and Control 3 s.h.
4614 Auditing 3 s.h.
4620 Microeconomics 3 s.h.
B.B.A. requirements or electives 6 s.h.

Spring Semester
4615 Financial Accounting III 3 s.h.
4616 Law and Business 3 s.h.
Policy requirement 3 s.h.
B.B.A. requirements or electives 6 s.h.

*Third Year
Fall Semester
4620 Accounting Theory I 3 s.h.
4621 Advanced Tax Accounting for Graduate Students (or elective) 3 s.h.
4622 Accounting Information Systems (or elective) 3 s.h.
Electives 6 s.h.

Spring Semester
4621 Accounting Theory II 3 s.h.
4622 Research in Taxation (or elective) 3 s.h.
4620 Auditing and Regulation of Accounting Practice (or elective) 3 s.h.
4620 Citizenship (or elective) 3 s.h.

*These courses are available upon admission to the third year of the program. At a minimum, students’ third-year program must include 15 semester hours of 200-level accounting courses, including 4620 and 4621, and 15 semester hours of graduate electives.

Program 2
This program is for students who have earned bachelor's degrees with a major in accounting at other institutions.

Students who want to enter the Professional Program in Accounting after having completed bachelor's degrees with concentrations in accounting from other institutions must submit an application for the M.A. program to the Graduate Admissions Office, Hancher Hall, The University of Iowa. Such students normally will be required to take only the third year
of the professional program (Program I above) to complete the M.A. degree.

Program III

This program is for students who have bachelor's degrees with no prior training in business or accounting. An individual program is developed for each student at the time of admission. Students with undergraduate degrees in fields other than business administration can, with careful planning, complete the Professional Program in Accounting requirements in two calendar years after admission to the Graduate College.

Nonbusiness undergraduates planning to enter the program should include as many first-year courses in the undergraduate program as possible. For students entering in the fall semester with no previous accounting or business course work, the following first-year course includes:

6A 192 Financial Accounting—M.B.A. 3 a.h.
6A 214 Managerial Accounting—M.B.A. 3 a.h.
6A 112 Introduction to Taxation—M.B.A. 3 a.h.
6A 131 Financial Accounting I—M.B.A. 3 a.h.
6A 132 Financial Accounting II—M.B.A. 3 a.h.
6H 250 Computer Methods—M.B.A. 3 a.h.
6F 194 Managerial Finance—M.B.A. 3 a.h.
6E 196 Marketing Management—M.B.A. 3 a.h.
6K 197 Quantitative Methods—M.B.A. 3 a.h.
6K 271 Statistical Methods—M.B.A. 3 a.h.
6K 148 Law and Business—M.B.A. 3 a.h.

The following two-year course programs:

6A 144 Accounting Principles—M.B.A. 3 a.h.
6A 220-221 Accounting Theory I-II—M.B.A. 6 a.h.
6A 281 Administration Science I—M.B.A. 3 a.h.
6A 308 Administrative Policy—M.B.A. 3 a.h.
6K 276 Social Research—M.B.A. 3 a.h.
6K 273 Managerial Economic Theory—M.B.A. 3 a.h.
6K 250 Accounting electives—M.B.A. 3 a.h.
6K 250 Accounting electives—M.B.A. 3 a.h.

Doctor of Philosophy

See "Interdepartmental Graduate Program" at the front of this section of the Catalogue.

Courses

Primarily for Undergraduates

6E 090 Cooperative Education Internship—M.B.A. 0 a.h.
6A 612 Introduction to Financial Accounting—M.B.A. 3 a.h.
6A 621 Cost Accounting—M.B.A. 3 a.h.
6A 624 Managerial Cost Accounting—M.B.A. 3 a.h.

For Undergraduates and Graduates

6A 610 Principles of Accounting—M.B.A. 3 a.h.
6A 614 Managerial Accounting—M.B.A. 3 a.h.
6A 615 Introduction to Taxation—M.B.A. 3 a.h.
6A 616 Marketing Management—M.B.A. 3 a.h.
6A 617 Quantitative Methods—M.B.A. 3 a.h.
6A 618 Financial Accounting I—M.B.A. 3 a.h.
6A 619 Financial Accounting II—M.B.A. 3 a.h.
6A 620 Cost Accounting for Management—M.B.A. 3 a.h.
6A 627 Intermediate Accounting—M.B.A. 3 a.h.
6A 628 Financial Accounting—M.B.A. 3 a.h.
6A 632 Advanced Management Accounting—M.B.A. 3 a.h.
6A 633 Auditing and Regulations of Accounting—M.B.A. 3 a.h.
6A 634 Managerial Cost Accounting—M.B.A. 3 a.h.

For Graduates

6A 633 Tax and Business Decisions—M.B.A. 3 a.h.
6A 634 Managerial Accounting—M.B.A. 3 a.h.
6A 635 Quantitative Methods—M.B.A. 3 a.h.
6A 637 Financial Accounting II—M.B.A. 3 a.h.
6A 638 Cost Accounting for Management—M.B.A. 3 a.h.
6A 639 Intermediate Accounting—M.B.A. 3 a.h.
6A 641 Advanced Management Accounting—M.B.A. 3 a.h.
6A 642 Auditing and Regulations of Accounting—M.B.A. 3 a.h.
6A 643 Managerial Cost Accounting—M.B.A. 3 a.h.
6A 645 Financial Accounting II—M.B.A. 3 a.h.
6A 646 Cost Accounting for Management—M.B.A. 3 a.h.
6A 647 Intermediate Accounting—M.B.A. 3 a.h.
6A 649Advanced Management Accounting—M.B.A. 3 a.h.
6A 650 Auditing and Regulations of Accounting—M.B.A. 3 a.h.
6A 652 Advanced Management Accounting—M.B.A. 3 a.h.
6A 653 Auditing and Regulations of Accounting—M.B.A. 3 a.h.
Economics

Undergraduate Programs

The bachelor's degree programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade associations. Many work as accountants and systems analysts. Full-time and part-time positions are available.

The department offers three undergraduate degrees in economics: the B.A. and B.S. degrees in the College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. and B.S. programs are designed for a well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management.

For descriptions of the B.A. and B.S. degree programs in economics, see "Economics" in the "College of Liberal Arts" section of the Catalog.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including:

GE 103 Microeconomics
GE 105 Macroeconomics

Graduate Programs

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in environmental economics, urban and regional economics, international economics and finance, financial and monetary economics, economics of the public sector, health economics, economic planning and budgeting, business and managerial economics, or labor economics and labor relations.

Courses required for the M.A. degree include:

GE 202 Statistical Methods in Econometrics
GE 203 Price Theory
GE 204 Macroeconomics I
Economic history or history of economic thought
GE 184 Methods of Quantitative Economics

In addition to the above core courses (15 semester hours), the student has the option of taking 13 hours of electives and writing a thesis (4 semester hours), for a minimum total of 32 semester hours of graduate credit; or taking 15 hours of electives and writing a research paper in each of two 200-level economics courses, for a maximum total of 24 semester hours of graduate credit.

Students who perform well in the first semester of the M.A. program may apply for transfer into the Ph.D. program at that time, without loss of credit.

Joint M.A.-M.B.A.

The department collaborates with the Department of Geography in a joint M.A.-M.B.A. program and with the Department of Law in a joint J.A.-J.D. program. In these programs the economics department accepts up to 9 semester hours of course work from the other departments as credit toward the M.A. degree in economics, and the other departments accept graduate credits in economics toward their degree.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

The core sequence:

First Semester
GE 180 Mathematics for Economists I
GE 185 Statistical Methods in Econometrics
GE 204 Microeconomics I
GE 205 Macroeconomics I

Second Semester
GE 186 Mathematics for Economists II
GE 205 Microeconomics II
GE 206 Macroeconomics II

Third Semester
GE 211 Mathematical Economics I
GE 221 Econometrics I

Fourth Semester
GE 222 Econometrics II

An additional 4 semester hours in economic history, history of economic thought, or economic methodology are required. Written examinations in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

Field Component

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive
study in a field and courses that enable the student to understand the relationship between his or her specialty and related fields. The student must achieve at least a 2.2 grade-point average in the major area courses.

Dissertation
The student must present and defend a dissertation prospectus during the third year. Admission to candidacy is granted upon successful defense of the prospectus. Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Courses
Primarily for Undergraduates
Note: 61.1 and 61.2 may be taken in either order or they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

61.008 Cooperative Education Internship 0.5 x h.
61.011 Principles of Microeconomics 3.5 x h.
Organizational and societal modules of microeconomics, trade, market, price, and equilibrium in the progression of economic welfare. Alternative views of economic welfare. International trade. Prerequisites: [extensive examination among majors. Prerequisites: 61.1 or 61.2, or senior standing.
61.013 Microeconomics 3.5 x h.
61.015 Macroeconomics 3.5 x h.
61.025 International and Comparative Economics 3.5 x h.
61.027 American Economic History 3.5 x h.
61.031 International Economics 3.5 x h.
61.033 Money and Banking 3.5 x h.
61.034 Macroeconomic Analysis 3.5 x h.
61.035 Monetary Theory and Policy 3.5 x h.
61.036 Institutional Economics 3.5 x h.
61.039 Money, Finance, and Economic Policy 3.5 x h.
61.041 Money, Finance, and Economic Policy 3.5 x h.
61.045 International Economics 3.5 x h.
61.046 Money, Finance, and Economic Policy 3.5 x h.
61.048 Money, Finance, and Economic Policy 3.5 x h.
61.051 Money, Finance, and Economic Policy 3.5 x h.
61.052 Money, Finance, and Economic Policy 3.5 x h.
61.053 Money, Finance, and Economic Policy 3.5 x h.
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61.075 Money, Finance, and Economic Policy 3.5 x h.
61.076 Money, Finance, and Economic Policy 3.5 x h.
61.077 Money, Finance, and Economic Policy 3.5 x h.
61.078 Money, Finance, and Economic Policy 3.5 x h.
61.079 Money, Finance, and Economic Policy 3.5 x h.
8211. Mathematical Economics I 3 sh.
Introduction to economic analysis in economic theory, economic and political decision-making, and economic evaluation. Applications relevant to income, consumption, and production decisions. Prerequisites: 8210 or consent of instructor.
8212. Mathematical Economics II 3 sh.
Advanced topics in economic theory. Applications of mathematical methods to economic problems. Prerequisites: 8211 or consent of instructor.
8213. Advanced Topics in Economic Theory 3 sh.
Advanced topics in economic theory. Prerequisites: 8211 or consent of instructor.
8214. Advanced Topics in Economic Theory 3 sh.
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8215. Advanced Topics in Economic Theory 3 sh.
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8221. Advanced Topics in Economic Theory 3 sh.
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8260. Advanced Topics in Economic Theory 3 sh.
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8280. Advanced Topics in Economic Theory 3 sh.
Advanced topics in economic theory. Prerequisites: 8211 or consent of instructor.
8281. Advanced Topics in Economic Theory 3 sh.
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8290. Advanced Topics in Economic Theory 3 sh.
Advanced topics in economic theory. Prerequisites: 8211 or consent of instructor.
Undergraduate Program

The undergraduate finance program deals with the theory, organization, and operations of the financial system from both social and managerial viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form.

Students graduating at a major in finance may look forward to managerial positions in credit control or treasury work in commercial finance institutions, in the entire range of financial services, or in nonprofit government organizations. The education received in consistent with progress toward responsible managerial positions.

Requirements for the Bachelor of Business Administration degree with a finance major are as follows:

- 111 Investments
- 113 Financial Markets and Institutions
- 117 Intermediate Financial Management

At least three semester hours of accounting beyond the basic core, followed by any two of these:

- 112 Security Analysis
- 114 Commercial Banking
- 118 Case Problems in Financial Management

Graduate Program

See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

- 3100 Cooperative Education Internship
- 3106 Introductory Financial Management
- 3108 Financial Planning and Investment Policies and Stages in Business Finance
- 3109 Directed Readings in Finance
- 3110 International Finance
- 3111 Security Analysis
- 3112 Financial Institutions
- 3113 Financial Accounting
- 3114 Corporate Financial Management
- 3115 Financial Management
- 3116 Financial Institutions
- 3117 Intermediate Financial Management
- 3118 Financial Management
- 3121 Corporate Financial Management
- 3122 Corporate Financial Management
- 3123 Public Economic Security Programs
- 3124 Risk Management

Nonrenewal of courses in business and economics may be designated by the department, with or without a refund of tuition, to reflect the best interest of the university community.
Management Sciences

Chair: G. C. F Global
Professor: Fred J. Bell, William A. Berry, (Stanford, Pennsylvania) Andrew F. N. D. M., Gary C. D. M., Perry E. M., Gerald L. M.,

Associate professor: Eleanor M. R., Warren J. J. D., Edward J. J., Johan llevada, Gary A. J.,


DEPARTMENT OF BUSINESS ADMINISTRATION

Degree offered: B.S., M.B.A., M.B.A., Ph.D.

Management sciences majors participate in a variety of educational experiences that develop their knowledge of managerial decision-making skills. Skills in applying this knowledge are acquired by developing quantitative models, utilizing computer technology, creating data base systems, and examining the behavioral attributes of organizations. Each degree track fits one of several career options open to departmental majors.

Administrative Sciences Track

16:016 Individual Behavior in Organizations
16:016 Group Behavior in Organizations
16:025 Design and Management of Organizations
16:076 Management Decision Models
16:150 Management Information Systems

Business and Administration

Course

Management Sciences

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16:025 Design and Management of Organizations
16:076 Management Decision Models
16:150 Management Information Systems

Business and Administration

Course

Graduate Programs

Master of Arts

The Master of Arts program in management sciences is designed for the student who seeks either an opportunity for specialization or for research experience. These general requirements are specified by the Master of Arts in business administration. See "Interdepartmental Graduate Programs" at the front of this section of the catalog. Students must consult with a faculty advisor to plan a study of the master's degree.

Doctor of Philosophy

Candidates who wish to earn a Ph.D. in management sciences should refer to the description of the Doctor of Philosophy program in "Interdepartmental Graduate Programs" at the front of this section of the catalog.

Courses

Primarily for Undergraduates

16:001 Microeconomics
16:172 Macromathematics
16:178 Management Science
16:184 Production Planning and Control
16:185 Management Information Systems

Operations Management

16:185 Production Management (may be taken in place of 6:190)
16:181 Individual Behavior in Organizations

16:130 Design and Management of Organizations
16:130 Managerial Decision Models
16:130 Management Information Systems
16:163 Systems Design for Operations Management
16:164 Production Planning and Control
Marketing

Chlor: Peter C. Russo
Professor: David J. Cyert, Peter C. Russo
Assistant Professors: Penny R. Barner, Gerald J. Elkin, John E. Olin

1200 Operations Planning and Control
3 s.h.

Brongh study of research on planning and control of production, operations, logistics in large scale manufacturing, distribution, production and workforce scheduling, project planning and scheduling, vehicle scheduling, inventory management, work force planning, capacity expansion, forecasting, production control and quality assurance, and control. Prerequisite: consent of instructor.

1200 Logistics System Design
3 s.h.

Integrates the study of design, implementation, and improvement aspects of logistics systems. Topics may include location and route selection, inventory management, sales and distribution, warehousing, transportation, electronic data interchange, and technology management, manufacturing systems. Prerequisite: consent of instructor.

1225 Research Seminar in Operations Management
3 s.h.

In-depth study of selected topics in operations research management such as capacity planning, facility location, technology management, project design and implementation, integer programming, decision analysis, and concerns. Prerequisite: consent of instructor.

1260 Logistics Management and Analysis
3 s.h.

Integrates systems design, location theory, network models, inventory control, forecasting planning, pricing, distribution, and capacity expansion, production. Prerequisite: consent of instructor.

Graduate Program

See “Interdepartmental Graduate Programs” in the front of this section of the Catalog.

Programs

Primarily for Upper-Division Undergraduates

EMM 000 Cooperative Education Internship 4 s.h.

Prerequisite: EM 134 and EM 14 with a grade of B or better.

EM 100 Introduction to Marketing
3 s.h.

Gives an overview of marketing environment, marketing opportunities, and marketing capabilities. Includes current marketing issues and developments. Prerequisites: ME 100 and (EM 101 or EM 102).

EM 134 Consumer Behavior
3 s.h.

Focuses on behavior aspects of marketing. Discusses marketing environment and market behavior. Includes consumer behavior, perception, decision making, attitude, social influence, reference groups, culture, and marketing behavior. Prerequisite: consent of instructor.

EM 135 Advertising Theory and Planning
3 s.h.

A study of advertising. Focuses on behavior, ethics, and aspects of marketing. Includes advertising, brand management, and consumer behavior. Prerequisite: consent of instructor.

EM 136 Marketing Communications
3 s.h.

An introduction to the study of marketing communications. Includes advertising, sales promotion, direct marketing, public relations, and personal selling. Prerequisites: M 100 and (EM 101 or EM 102).

EM 137 Sales Management
3 s.h.

The nature of personal selling and management of the sales force includes recruiting, selection, training, and evaluation of sales personnel. Topics include selling processes, sales management techniques, motivation, compensation, ethics, and control. Prerequisite: consent of instructor.

EM 138 Senior Seminar in Marketing
3 s.h.

A study of integration of the material covered in other courses. Enrollment is limited to upper-division students. Prerequisites: consent of instructor.

EM 139 International Marketing
3 s.h.

Enables students to understand the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 140 Financial Markets
3 s.h.

An overview of the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 141 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 142 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 143 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 144 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 145 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 146 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 147 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 148 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 149 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 150 International Marketing
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Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 151 International Marketing
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Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 152 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 153 International Marketing
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Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 154 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 155 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 156 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 157 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 158 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 159 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.

EM 160 International Marketing
3 s.h.

Studied the marketing environment in a foreign country. Students will study the country's economic, political, and cultural environment, and market potential. Prerequisite: consent of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>BM 242</td>
<td>Psychological Testing for Marketing</td>
<td>3 c.h.</td>
<td>Requires a number of psychological scaling techniques that have applications in consumer research in marketing.</td>
</tr>
<tr>
<td>BM 242</td>
<td>Seminar in Marketing</td>
<td></td>
<td>Examination of current marketing literature and current problems in marketing and consumer behavior.</td>
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<td>BM 270</td>
<td>Research in Marketing</td>
<td></td>
<td>Individual guided research projects on appropriate topics in marketing. Pre-requisite: consent of instructor.</td>
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<tr>
<td>BM 390</td>
<td>Thesis in Marketing</td>
<td></td>
<td>Pre-requisite: consent of instructor.</td>
</tr>
<tr>
<td>BM 390</td>
<td>Final Studies in Marketing</td>
<td>1-3 c.h.</td>
<td>Substantive knowledge regarding various aspects of marketing applied to real problems in ongoing business firms; emphasis on trends of current marketing studies under faculty supervision. Pre-requisite: consent of instructor.</td>
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College of Dentistry

Dental Science Building

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Dean: James H. McLane
Executive associate dean: John C. Montgomery
Assistant dean for research and director of Dow Institute: Christopher E. Smith
Associate dean for academic affairs: Nelson S. Logan
Assistant dean for clinical activities: Thomas V. Gartner
Assistant dean for extramural affairs: C. Frederick Tife
Assistant dean for business and financial administration: M.D. Brennan
Degrees offered: D.D.S., M.S.
The College of Dentistry is both administratively and physically an integral part of the University. It draws on and contributes to the University's diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Center, whose teaching, research, and service activities have earned international recognition.

Doctor of Dental Surgery

The basic educational program leading to the Doctor of Dental Surgery (D.D.S.) degree consists of approximately three years of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units.

Basic Sciences
- Gross anatomy, biochemistry, histology, physiology, general pathology, oral pathology, pharmacology, microbiology.

Restorative Dental Sciences
- Gross, microscopic, and radiographic dental anatomy, dental radiography, occlusal, endodontics: operative dentistry, fixed partial prosthetics, removable prosthetics.

Oral Medicine
- Preventive dentistry, oral diagnosis; dental radiology, oral pathology, anesthesia, and pain control; oral surgery; periodontics. Dental and medical problems are selected mini-courses in the bioclinic options program that emphasize the correlation between the basic and clinical sciences.

Community Dentistry
- Ethics; epidemiology; nutrition; preventive dentistry; community health, principles of human behavior; dental economics; dental jurisprudence; geriatrics.

Pediatric Dentistry
- Facial growth and development; pediatric dentistry and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year.

The second-year program includes further activities in the basic and clinical sciences.

Third-year dental students rotate through a series of "clinics," which expose them to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment that simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural hospital programs that include hospitals, mental health institutions, the Dental Mobile Unit, and the Special Patient Care Clinics. Fourth-year dental students also participate in preceptorships, in which they assist in selected Iowa dental offices, gaining exposure to facets of dentistry usually not observable in an academic setting, such as practical business management, procedures, and the relationship of the dentist to the community.

Promotions and Graduation

Student promotions and graduation are determined by the colleges' academic and professional performance committee, which is made up of individuals appointed by the dean from the basic preclinical and clinical sciences and from other academic areas of the college. The performance committee may recommend to the 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 to receive special consideration on problems concerning promotion, 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 before or that, for some reason, 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 collegial academic and professional performance committee's decision. The recommissioning of the appeals committee is submitted to the dean for final action.

State Board of Dentistry Licensure Examination

The states of Kansas, Colorado, Missouri, Iowa, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota belong to the Central Regional Dental Testing Service, which serves as the testing agency for clinical examinations for licensure in these states. Examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative secretary. For a five-year period, number states accept successful completion of Central Regional Dental Testing Service requirements in lieu of their individual state's examination requirements.

Facilities

The Dental Science Building, a major unit in the Iowa health center, enables the college to accelerate its research activities and facilitates the development of interdisciplinary communication in health center testing, research, and patient-care activities. The health center includes the colleges of Medicine, Nursing, and Pharmacy. The Bowler Memorial Building: University of Iowa Hospitals and Clinics; and the Health Sciences Library. The Health Sciences Library houses all of the University's special health science holdings, a total of 108,750 volumes, including the College of Dentistry's collection of more than 18,000 volumes on dentistry and allied scientific subjects, and the more than 280 dental journals the college curiously receives. The library receives more than 2,000 journals from the coordinated health professions.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The south wing is devoted to critical teaching, with various departmental clinic facilities, support laboratories, clinic research space, offices, and an automated learning center. The north wing contains college offices, computer laboratories, research laboratories, administration area, audiologic production center, and programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local organization, the Iowa Student Dental Association. The Iowa Dental Alumni Association also has local chapters. The American Association of Dental Research, the American Association of Women Dentists, and the American Society of Dentistry for Children. Students who rank in the upper 12% of the senior class are eligible for election to Omicron Kappa, the national scholastic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa, and both have spouses organizations.

Expenses

The College of Dentistry maintains a Supply-Inventory Management System (S.I.M.S.) that provides the student with all the supplies necessary throughout dental training.

The instrument usage fee for the program leading to the D.D.S. degree is payable in
Financial Aid

Financial assistance for dental students is based on need. Eligibility is established by completion of the College Scholarship Service Financial Aid Form, which includes an evaluation of parents' income and assets. Newly dental students are eligible for Health Professions Loan. National Direct Student Loans, state grants, and Guaranteed Student Loans. Interest on these loans accrues at a comparatively low rate and the loans are repayable over an extended period of time after completion of the course of study.

Short-term loans are available through the financial aid coordinator at the College of Dentistry.

See "Financial Aid" in the "Learning at Iowa" section of the Catalog or inquire at the Office of Student Financial Aid for updated information regarding financial assistance available to dental students.

Admission

Each applicant must submit a completed application form to the American Association of Dental Schools Application Service (AADSAS). The AADSAS forms are available from the University Office of Admissions.

Applications are accepted beginning June 1 of the year prior to the year for which application is made. Completed applications must be on file at AADSAS by November 30. Applicants should apply as early as possible and should not delay until after the Dental Admission Test (DAT) is taken. Notifications of acceptance will be sent between December 1 and January 1.

The prospective dental student is encouraged to embark on an education program that will lead to a standard bachelor's degree. This will allow the student to consider a combined program that enables him or her to earn a standard bachelor's degree upon completion of the freshmen year in dentistry (see Combined Liberal Arts-Dentistry Course in this section of the Catalog).

Predental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of no less than 94 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 94 semester hours of college work will be considered for admission if the applicant's performance and potential for the dental profession are considered outstanding.

The predental program of study should include:

- English
- Satisfactory accomplishment in English composition, rhetoric, and speech
- Correspondence with the academic requirements for a bachelor's degree at the college attended.
- Physics
  - One year (equivalent to 8 semester hours), of which one-fourth must be laboratory work.
- Chemistry
  - Two years (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) must be in organic chemistry, and of which one-fourth must be laboratory work.
- Biology
  - One year (equivalent to 8 semester hours), which must include appropriate laboratory work; requirement may be satisfied by a one-year course in either general biology or zoology and botany (not botany alone).
- Electives
  - Sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

Combined Liberal Arts-Dentistry Course

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective hour requirements toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University allows students who enter the College of Dentistry to obtain a bachelor's degree from the College of Liberal Arts after successfully completing the freshmen year in dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor's degree, including the requirements for a major in a department or area of concentration. Students can satisfy the College of Liberal Arts residence requirement by successfully completing the last 30 semester hours in the College of Liberal Arts on campus at The University of Iowa before enrolling in the College of Dentistry.

Grade-Point Requirement

The applicant should have a cumulative grade-point average of at least 2.5. The admissions committee gives special consideration to the quality of the applicant's course work in the predental sciences in addition to his or her cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants will be notified when to appear for interviews, usually after the AADSAS application is received by the Admissions Office. If the applicant is unavailable during the fall semester (travel, foreign study), arrangements should be made for an interview during the preceding summer.

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. Tests are given in April and October. The University of Iowa is a testing center. Applicants must take the test no later than October in order to be admitted for the following year. Applicants may obtain test application forms from the University Office of Admissions or the American Dental Association, 211 East Chicago Avenue, Chicago, Ill. 60611. Test applications should be submitted at least 30 days before the test.

Deposit by Accepted Applicants

Applicants accepted before April 15 are required to submit a $500 deposit within 30 days after notification of admittance. Applicants admitted after April 15 must submit the deposit within two weeks after notification of admittance. This deposit is nonrefundable, 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

Fullfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science test scores, Dental Admission Test scores, letters of recommendation, the interview, and other factors.
Special Programs

Early Admissions

The College of Dentistry has an early admission program for students from the University of Iowa, Augustana College in Rock Island, Illinois, and Purdue View A & M University in Prairie View, Texas. The Dental Early Admission Program (DEAP) allows academically-motivated students interested in a dental career to be admitted as early as the first year of their undergraduate college education while postponing matriculation to the College of Dentistry until they have completed three years of liberal arts education. During these three years, the students are engaged in a liberal arts curriculum that incorporates the dental prerequisite courses. Once selected for the program, the student must maintain a 3.30 grade-point average to assure matriculation to The University of Iowa College of Dentistry.

Scholarship

The College of Dentistry has a limited number of Merit Scholarships available to first-year dental students. Selection is based on undergraduate grade-point average, DAT scores, and the interview. This scholarship is renewable for two additional years if a 3.25 cumulative grade-point average is maintained.

Contract

Under an agreement with The University of Iowa College of Dentistry, the State of Arkansas makes supplemental tuition payments to its students. The dentistry students at Iowa. These payments enable the Arkansas students to pay the equivalent of Iowa resident tuition for their study here.

Graduate and Postgraduate Study

Programs of study leading to the Master of Science degree are offered by the College of Dentistry in the fields of Hygiene, Fixed Prosthodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Pediatric Dentistry, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics. Admission to any of the graduate programs requires satisfaction of all requirements for admission to the Graduate College, possession of a Doctor of Dental Surgery degree or its equivalent (except for Dentistry), and department approval.

Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as for graduate programs. A certificate is awarded upon satisfactory completion of the postgraduate program.

Basic Sciences in the Dental Curriculum

The following science courses are offered by departments in colleges other than dentistry, and are a required part of the dental curriculum:

- 60:101 Human Gross Anatomy for Dental Students
- 60:102 General Histology for Dental Students
- 60:114 Oral Histology and Embryology
- 61:122 Health Sciences Microbiology
- 69:203 Introduction to Human Pathology
- 71:111 Pharmacology for Health Sciences: Dental Sciences
- 72:252 Mammalian Physiology
- 99:263 Biochemistry for Dental Students

Courses

Nondepartmental

100:170 Transfer Credits Accepted
100:209 First-Year Controlling Session
100:245 Introduction to Dental Hygiene
100:225 Science of Food and Nutrition
100:249 Dentistry and Oral Health: Theories and Practice
100:309 Second-Year Controlling Session
100:310 Biochemistry (for students entering the dental hygiene program)
100:320 Dental Therapeutics
100:350 Review of medical records taken by patients that may have implications for dental treatment, review of medications that patient may prescribe.
100:379 Third-Year Controlling Session
100:370 Progress Ahead
100:395 Oral hygiene and home care studies integrated with the function of dental hygiene students.
100:396 Fourth-Year Clubs
100:398 Advanced Clinical Cooperatives for Dentistry
110:049 Introduction to Ethics: Preclinical
110:059 Introduction to Ethics: Clinical
110:069 Advanced Clinical Cooperatives for Dental Hygiene

Clinical Management Concepts

Professor: Thomas V. Gardner
Assistant professors: Pat Leatherman, John Logan
Assistant professor: Gerald Scann

Dental Hygiene

Chair: Paulette Rice
Professor: Janis Jerzy
Associate professors: Paulette Rice, Nancy Siy Lefto, Elizabeth Putter, Kay Mosher, Nancy Thompson
Assistant professor: Janis Edmond

James A. Sharp Degrees offered: B.S., M.S.

Undergraduate Program

Qualified by education and licensure, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing services for the prevention and control of oral diseases.

The Bachelor of Science degree program in dental hygiene comprises two years of general education followed by two years of specialized study. The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the national, regional, and state dental hygiene licensure examinations required for dental hygiene practice. Included in the General Education Requirements are courses in the basic and social sciences. These courses provide the student with educational preparation in disciplines relevant to specialized study in medical and dental sciences and in dental hygiene.

Students take the specialized courses during the junior and senior years. In the junior year, students enroll in 60:2 Human Hygiene, 71:130 Intermediate Pharmacology, 82:61 Introduction to Periodontology; 82:61 Operative Dentistry Laboratory for Hygienists; 86:46 Introduction to Oral Pathology; 86:61 Oral Dental Hygiene for Dental Hygienists, 86:62
DENTISTRY/Dental Hygiene

Dental Radiology for Dental Hygienists; 87.63 Anesthesia: Anesthesia; 86.51 Dental Anatomy; and 88.52 Head and Neck Anatomy.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice. Course Completion of Dental Hygiene Core I and 88.62 Dental Hygiene Core II, which integrates the academic and clinical core dental sciences with the theory and practice of clinical dental hygiene.

During the senior year, students advance their clinical skills in 88.65 Clinical Dental Hygiene; 82.90 Advanced Periodontics for Dental Hygienists; 88.88 Seminar: Community Dental Health; 79.132 Designing and Developing Instructional Materials; and 225.103 Biostatistics: 112.145 Introduction to Geriatric Dentistry.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and epidemiology, are incorporated into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Students discover broad community health issues related to the provision of dental health care. Field experiences enable students to apply knowledge of human behavior, basic principles of communication and teaching, and educational and research techniques to the design, implementation, and evaluation of health care and educational programs.

Admission

High School Preparation

Although there are no specific high school course requirements, college preparatory courses are recommended. These courses should include four years of English, at least two years of a foreign language (preferably Spanish), two years of high school algebra and one year of high school geometry, and one year each of biology and chemistry.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion of 66 semester hours of college course work. In fulfilling this requirement, the student must satisfy General Education Requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

Four semester hours (4 to transfer students) of biological science—6:317 Introduction to Animal Biology;

Three semester hours of inorganic chemistry—4:7 General Chemistry I;

Three semester hours of organic chemistry, including biochemistry—4:8 General Chemistry II;

Four semester hours of microbiology—6:146 Microbiology;

Three semester hours of nutrition—17.46 Food, Nutrition, and You;

Three semester hours of psychology—21.5 Elementary Psychology;

Three semester hours of sociology—34:1 Introduction to Sociology Principles;

Four semester hours of anatomy—60.1 Elementary Human Anatomy;

Four semester hours of physiology—72.130 or 72.140 Human Physiology.

These prerequisites provide the educational basis for the dental hygiene course of study. In addition, students are required to fill into the professional program of study must complete basic certification in cardiopulmonary resuscitation (CPR) prior to entrance.

Completion of a two-year associate degree program in dental hygiene does not provide an appropriate background for transfer into the baccalaureate program at Iowa State University.

Students begin the professional program in dental hygiene in the fall only. Students enrolled at the University of Iowa College of Liberal Arts need submit only the dental hygiene application in the spring semester of their freshman year. Transfer students must submit both College of Liberal Arts and dental hygiene applications.

Students must apply for dental hygiene admission by March 1 preceding the fall semester in which they wish to enter the program.

Graduate Program

The graduate program fulfills the need for qualified educators in dental hygiene as well as the need for preparing graduates to contribute to the advancement of new knowledge in dental hygiene. Program graduates are prepared for positions as dental hygiene educators and administrators, research assistants, dental health care practitioners, program administrators, consumer advocates, and preventive product consultants. Therefore, graduate program goals place emphasis on the acquisition of advanced scientific knowledge in the biological, social, and physical sciences, as well as research and professional experiences in conducting research.

The curriculum design provides the student with courses that contribute to the advancement of dental hygiene theory. In the biological field, this consists of the pathophysiology of dental plaque, including plaque microbiology, biofilm development, and the relationship of plaque to caries and periodontal disease; the response of the host to dental plaque, emphasizing immunological mechanisms; and the prevention of dental diseases by immunization and antimicrobial agents.

In the social science area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concepts related to oral health. Selected readings relate societal values and institutional elements of dental care delivery systems to oral health outcomes and explore the relationships of the individual, the family, and the community to oral health outcomes, both behavioral and physical.

Study in the "educational field includes dental hygiene theory," with emphasis on dental hygiene education elements of curriculum design, and the theory and application of didactic and clinical teaching in dental hygiene.

Although students may begin the 34 semester-hour program during the summer sessions, most students enter the program at the beginning of the fall semester. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores are received at the office of the Dental Hygiene Program, and admission is made as soon as possible prior to the semester for which admission is desired. Most students should expect full-time student status for two academic years to complete degree requirements.

Approximately 14 semester hours are taken in assigned courses to acquire advanced knowledge in dental hygiene and 10 semester hours are taken in research methodology and thesis preparation and defense. The remaining 12 hours include electives in the biomedical and social sciences.

Elective course work related to the biomedical sciences may include microbiology, histology, biochemistry, oral pathology, and periodontology.

Elective course work related to the biomedical sciences may include microanatomy, histology, biochemistry, oral pathology, and periodontology.

Electives emphasizing the social, economic, and political aspects of health include epidemiology, medical sociology, and health administration.

Students also are encouraged to consider taking electives in education, such as educational measurement, theories of learning, and administration.

Courses required in dental hygiene are 88.201 Seminar: Dental Hygiene Literature Review; 88.203 Research: Dental Hygiene; 88.204 Selected Topics in Dental Hygiene Education; 88.205 Social Factors and Oral Health; and 88.206 Thesis: Dental Hygiene.
Other required courses are 111.212 Statistical Methods in the Biomedical Sciences, or PR.143 Introduction to Statistical Methods, and 111.214 Design and Evaluation of Research Design.

Admission
Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination (GRE) Aptitude Test and a 2.8 minimum undergraduate cumulative grade-point average. The undergraduate education of the applicant should include courses equivalent to those in the undergraduate dental hygiene major at The University of Iowa.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Calhoun Hall. These materials must be received before the candidate's application can be processed. Application for admission and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Special Programs
Through an independent study program, students can explore additional career options in dental hygiene across their educational background in a dental hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty directed research project. Others considering graduate programs in public health or dental hygiene may become involved under the direction of faculty, conduct projects related to these interest areas.

Facilities
University of Iowa dental hygiene majors receive their professional preparation in the University's modern Dental Science Building. This building is part of The University of Iowa Health Center complex, one of the nation's outstanding health science teaching, research, and patient care facilities.

Financial Aid
In addition to financial assistance available to University students in general, there is a limited number of basis specifically for dental hygiene students. These loans are based on assessment of the student's academic record as well as financial need.

Courses
For Undergraduates
15.45 Dental Hygiene I 3.0 h.
Include dental terminology, themorphological characteristics of teeth, the functional relationship and abnormal conditions emphasized on the relationship of their morphology to clinical dental hygiene practice.
15.62 Dental Hygiene Care I 7.0 h.
Introduction to dental hygiene theory, clinical skills, oral diseases, dental treatment, and use of health services.
15.65 Dental Hygiene Care II 5.0 h.
Emphasis on applications of dental hygiene theory in the performance of intermediate clinical dental hygiene and oral care treatment procedures.
15.66 Clinical Dental Hygiene Practice 5.0 h.
Practicum of advanced dental hygiene procedures with emphasis on providing comprehensive preventive and clinical services.
15.68 Seminar: Dental Hygiene Concepts and Problems 3.0 h.
Review of current research and advances in preventive methodologies: ethical, legal, and sociopolitical roles. Discussion of role recommendations in area of public health practice.
15.75 Seminar: Community Dental Health 4.5 h.
Knowledge of dental health, dental care, and educational and research techniques applied in practical application in the feasibility, evaluation, and coordination of dental health education, research, or public health.

For Graduates
15.24 Seminar: Dental Hygiene Literature Review 2.5 h.
Analysis of dental hygiene information on political, sociological, and educational factors influencing trends and current status of knowledge in field of dental hygiene.
15.29 Research Seminar in Dental Hygiene 2.5 h.
Literature review, writing of research paper, planning, and presentation of research projects.
15.34 Selected Topics in Dental Hygiene 4.0 h.
Theory and research applied to specific areas of dental hygiene education, clinical, dental, or total settings, emphasis on biostatistical and methodological issues.
15.39 Dental Factory and Oral Health 1.5 h.
Evaluation of current research conducted on cultural, sociological, and philosophical factors influencing oral hygiene and oral health care.
15.35 Thesis for Dental Hygiene 3.0 h.
Completion of thesis preparation and defense.

Endodontics
Head: Richard E. Dalton
Professor: Richard E. Dalton
Professor: Thomas F. Forbis
Assistant professor: Keith V. Verdi
Assistant professor: Sandra Maddox
Degree offered: M.S.

Predoctoral Program
Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student.

Preclinical endodontics, taught during the sophomore year, includes didactic and laboratory courses. In clinical endodontics, the student studies both normal and pathological conditions of the dental pulp and periradicular organs, emphasizing the areas of prevention and diagnosis of dental and periapical disease. Students treat endodontic patients under direct supervision of faculty and staff.

Graduate Program
The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and/or a career in dental education and research.

The department offers two types of graduate (post-D.D.S.) programs.
The Master of Science degree program requires a minimum of 40 graduate semester hours, including an original research project and thesis. The student follows a plan of study that may involve a total of 60 semester hours.

The certificate program requires no formal thesis. The candidate is expected to write a scientific paper of publishable quality, based on original research.

The certificate program involves course study for up to 40 semester hours of credit.

An individual plan of study is prepared for each student.

Both programs are for a minimum of two calendar years, and only full-time students are contemplated. The program requires satisfactory performance in a comprehensive written and/or oral examination, which is a function of character and does not duplicate semester examination.

These programs satisfy the training requirements for eligibility for the American Board of Endodontics.

The specific goals of these programs are to allow and to assist the dentist to develop his or her skills and acquire a broad knowledge of the specialty of endodontics for teaching and practice purposes. After gain sufficient knowledge and experience in the educational process so that he or  she may function confidently as a dental educator; to recognize the value of the practice of academic endodontics; and to develop the ability to plan, conduct, and report the results of research investigations.

An applicant for the graduate program in endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for admission to the Graduate College of The University of Iowa. The graduate programs in endodontics normally begin July 1.
However, it is also possible to start a program at the beginning of either the spring semester or summer session.

Applications should be made no later than two semester periods in advance of anticipated starting date. Deadlines for those who have sent the requirements for admission to the Graduate College also should be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may be requested.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate or degree. A student who falls below this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not receive themselves in private practice enterprises outside the college. A student who does so will be asked to obligate himself or herself exclusively either to the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

Courses

Predoctoral

030-168 Clinical Endodontic Practice 2 cr.

Clinical diagnosis, endodontic procedures, and treatment of root canal and preoperative pulpitis and periodontal emergencies, diagnosis and treatment of endodontic emergencies are also provided to patients in students under faculty supervision.

030-166 Clinical Endodontic Seminar 2 cr.

Lectures and seminar courses exploring various concepts of root canal therapy, restoration, and periodontal techniques, endodontic surgical complications, evidence diagnostic and biomechanical, surgical endodontics, and endodontic research.

030-170 Endodontic Topics in Endodontics 1 cr.

Graduate

030-205 Endodontic Literature Review 1 cr.

Students must develop a comprehensive understanding of endodontics. The reviews are topical and are written, concerning one topic each year. The objective is to acquaint the graduate student with recent literature knowledge.

030-228 Endodontic Literature Review II 2 cr.

030-227 Endodontic Literature Review III 2 cr.

030-228 Endodontic Literature Review IV 2 cr.

031-200 Research in Endodontics 4 cr.

Topic selection, personal preparation and writing research, computerized statistical analysis and gathering of data, and writing in style and style, dictate standards.

031-231 Thesis Preparation in Endodontics 3 cr.

Evaluation of endodontic cases that require surgical treatment; discussion of clinical, diagnostic, and therapeutic methods and techniques; graduate student's involvement in their study and or preparation for their thesis work.

031-261 Advanced Clinical Endodontics 1 cr.

Clinical treatment of patients, preparation for future practice. Must be taken every semester.

031-302 Seminar in Endodontics I 2 cr.

Etiology and pathogenesis of tooth and root endodontic disorders; structure, anatomy, and physiology of the tooth, crown, and root; basic principles of endodontic techniques.

031-303 Seminar in Endodontics II 2 cr.

Etiology and pathogenesis of pulp and periapical pathologies, with emphasis on inflammatory and noninflammatory response; review of pulp and pathological anatomy.

031-304 Seminar in Endodontics III 2 cr.

Clinical endodontic procedures, complications, and treatment of endodontic cases; evaluation of experience and knowledge to further endodontic research.

031-305 Seminar in Endodontics IV 2 cr.

All areas of dental treatment related to endodontics except endodontic cases and oral hygiene. Review of endodontic case management and treatment planning.

031-306 Practicum Teaching in Endodontics 1 cr.

For students interested in teaching dentistry, especially in the area of endodontics, to gain experience in the administration and service of courses and seminars and prepare students to become undergraduate teachers.

Family Dentistry

Head: Daniel L. Hall
Professor: Donald C. Robbins
Associate professors: Larry J. Daher, Howard W. Dekker, John F. Dentinger, William W. Williams
Assistant professors: from V. Harvey, Abner L. Sayers, from M. Hall

The Department of Family Dentistry is responsible for the senior dental student's final synthesis of academic experiences. The major goal is the integration of previously learned clinical skills into a well-organized and systematic approach to the comprehensive dental treatment of patients. The experience encompasses approximately three-fourths of the senior year.

Family Dentistry 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 the previous year's education. All areas of clinical and didactic instruction, patient management, and responsibility to patients' needs are stressed.

The department's two-practice management courses—one lecture, the other clinical—prepare the student to make practice location selections as well as manage the business aspects of a dental office.

Courses

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Graduate Programs

The department offers a Master of Science degree and certificate programs. The primary purpose of the M.S. program is to prepare prosthodontists to work in private practice and to prepare dentists for careers in fixed prosthodontics education and research. The certificate program is designed primarily for individuals wishing to further prepare themselves for private practice in fixed prosthodontics. Both programs satisfy the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Master of Science

The program gives major emphasis to fixed prosthodontics theory and treatment, and includes self-study courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biostatistics or epidemiological statistical inferences in medicine, and course work in the general area of basic science. A research project and thesis also are required for the master's degree.

Each student is required to submit a manuscript suitable for publication in a nationally recognized professional journal, based on the student's research and thesis topic.

Certificate Program

The department offers a certificate program that provides more clinical experience than the M.S. program and does not require a thesis. The certificate also satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Admission

The minimum requirements for admission to the program do not correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its equivalent.

Courses

Predoctoral

81130 Prosthodontic Materials Laboratory 2 a.b.
81131 Oral Mechanics 2 a.b.
81132 Introduction to Anthropometric and Morphometric Structures of the Oral Region 2 a.b.

Operative Dentistry

Head: Wallace W. Johnson

Professors: Kazunori Kavachi, Gerald Demetru, James Tabler, Walter W. Johnson

Associate professors: Dan Boyer, Yvonne Cudkowicz, Justin Robert, John Pedler

Assistant professor: Thomas Schulein

Degree offered: M.S.

Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamental to the overall education of a dental student. The operative dentistry curriculum is designed so that the distinctive material presented relates closely to the laboratory and clinical experiences. The program will provide students with the knowledge and experience necessary to proceed independently in operative dentistry during the fourth year of training.

Graduate Program

The department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate programs for the student to pursue courses that are of particular interest to them. Students may take the program for either a Master of Science degree or a certificate of advanced operative dentistry.

Requirements for the M.S. degree include satisfactory completion of 48 semester hours of specified graduate-level courses, satisfactory evaluation of an acceptable thesis based on original research, and formal defense of the thesis and the examination by an examining committee.

Students should plan to turn in their own financial support for the research and thesis. Applicants for this program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. An interview with the applicant may be requested.

Courses

Dental Hygiene

8121 Operative Dentistry Laboratory for Hygienists 2 a.b.

Basic skills on the application of ceramic materials, core buildups, and the restoration procedures of operative dentistry.

Predoctoral

81210 Dental Assistant Lectures 1 a.b.

Lectures and exercises concerning dental nomenclature, dental anatomy, and etiology of restorative procedures and their restorative procedures in operative dentistry.

81211 Dental Assistant Laboratory 2 a.b.

Clinical work of dental assistants on tooth and fabricating procedures of operative dentistry.

81212 Operative Dentistry I 1 a.b.


81213 Operative Dentistry II Laboratory and Clinic 3 a.b.

Application of procedures discussed in preparation laboratory II to the oral cavity using experimental procedures. Practical application of principles and procedures concerning the oral cavity. Students will use and maintain through materials in laboratory or materials and procedures for the oral cavity.

81240 Operative Dentistry II 1 a.b.

Clinical work of operative dentistry on models and in the office.

81241 Operative Dentistry III Clinic 3 a.b.

Clinical work of operative dentistry on patients in operantive clinic for the second year students.

81242 Operative Dentistry II Clinic 1 a.b.

Supervised patient treatment to develop clinical skill in operative dentistry and in understanding psycological, psychological, and aesthetic requirements of restorative treatment to patients.
Oral Pathology and Diagnosis

Head: Gilbert E. Levy

Associate professors: Nancy L. Harmon, Lewis H. Higa, 
Mary M. Saenter, William H. Tuley, Murray W. Hill

Assistant professors: James W. Chamberlin, 
William J. Haussler, Philip S. Hopper, Clayton L. Shields

Assistant professor: Michael W. Pakoszewski

Assistant professor: Terry H. Stepp, Steven D. Cusick

Adjunct associate professors: George C.

Assistant professor: Thomas P. Williams

Graduate Programs

Master of Science

Advanced instruction is available for graduate-level students in health sciences and related fields who are preparing for speciality practice or careers in teaching and research in the areas of oral pathology, oral diagnosis, and dental radiology.

Examiners for the Master of Science degree are expected to develop substantial ability for research into mechanisms of oral disease, and should anticipate the considerable effort devoted to completing an assigned research project and the thesis based on it.

Minimum requirements for completion of this program are 45 semester hours of graduate credit and a thesis. The required courses are:

111:212 Statistical Methods in 
Biomedical Sciences
60:207 General Pathology for 
Medical Students
60:226 Systemic Pathology for 
Medical Students
80:223 Research in Oral 
Pathology and 
Dentistry
80:240 Histopathology
80:256 Advanced Oral Pathology
90:215 Dental Science Research 
Methodology
80:180 Topics in Oral Pathology

Predoctoral Program

The department's primary objective is to provide instructional to dental students and other health-profession students in the etiology, natural history, and diagnoses of diseases manifest in and about the oral cavity. Aims include the clinical, laboratory, radiographic, and microscopic features of these diseases and their management.

Degree offered: M.S.
of 2.7, and must present satisfactory scores in the Graduate Record Examination (GRE), Aptitude Test. Acceptance of any applicant meeting the requirements for admission will rest with the departmental staff. Prospective applicants are encouraged to discuss program requirements with the department head prior to application.

Courses

Dental Hygiene

0600 Introduction to Oral Pathology 1 s.h. Knowledge of the signs, symptoms, and classification of the various diseases. Required for dental hygiene.

0601 Oral Pathology for Dental Hygienists 1 s.h. Study of oral diseases, providing basic information required to differentiate normal from abnormal tissues and forms the basis for understanding of the pathological processes involved in oral health. Required for dental hygiene.

0602 Dental Radiology for Dental Hygienists 1 s.h. Ionizing radiographic techniques, radiation hygiene, processing techniques, and recording time, trial, and technique.

0603 Clinical Dental Radiology for Dental Hygienists 2 s.h. Superimposed clinical experience in taking dental radiographs, processing, and recording time.

Predoctoral

0610 Introduction to Diagnosis and Radiology 1 s.h. Review of methods and materials of dental and radiographic examination and interpretation of hard tissue and soft tissues.

0611 Oral Pathology 4 s.h. Emphasis on manifestations and laboratory techniques of disease processes involving oral structures, normal histology.

0614 Prophylactic Dentistry and Radiology 1 s.h. Fundamentals of dental prophylaxis, diagnosis, and radiographic techniques, including digital and computed radiography.

0615 Systemic Disease Manifestations 1 s.h. Review of general systemic conditions to familiarize students with the body system involved in oral diseases.

0616 Clinical Oral Pathology and Diagnosis 1 s.h. Study of general practice oral and maxillofacial diagnosis and related clinical, laboratory, and radiographic methods, material, and techniques of oral pathology and pathognomonic signs and symptoms.

0617 Clinical Dental Radiology 2 s.h. Superimposed experience in taking and processing complicated and complex radiographic procedures and oral pathology.

0618 Topics in Oral Pathology 2 s.h. Lectures and demonstrations in concentrated areas of specific pathology. Required for students planning advanced study in oral pathology and graduate course.

Graduate

0620M Oral Pathology and Diagnosis Literature Review 1 s.h. Advanced preparation and reading of selected literature. Prerequisite: consent of instructor.

0630M Maxillofacial Surgery Literature Review 2 s.h. Physical examination of the head and neck, imaging findings, and oral and maxillofacial surgery. Literature review of advanced oral surgery procedures. Prerequisite: consent of instructor.

0624M Hospital, Laboratory, and Hospitalized Patients with Special Needs 3 s.h. Students will maintain contact with patients in the office or hospital setting. Prerequisite: consent of instructor.

0627M Surgical Oral Pathology 3 s.h. Practical experience in developing and performing oral surgical procedures. May be repeated. Prerequisite: completion of 0626M and consent of instructor.

0628M Research in Oral Pathology and Diagnoses 3 s.h. Students will be required to submit a written report on an oral pathology or diagnostic project. May be repeated. Prerequisite: completion of 0630M and consent of instructor.

0629M Histology 1 s.h. Includes oral and maxillofacial pathology laboratory for histology, histochemistry, and in situ hybridization. May be repeated. Prerequisites: completion of 0630M and consent of instructor.

0631M Hospital Oral Pathology 1 s.h. Participation in the inpatient setting for patients with oral pathology, oral disease, and craniofacial anomalies. May be repeated. Prerequisite: completion of 0630M and consent of instructor.

0632M Dental Radiology Advanced Clinical 2 s.h. Advanced clinical and laboratory radiographic techniques. Prerequisite: completion of 0630M and consent of instructor.

0633M Advanced Oral Pathology 2 s.h. In-depth study of disease involving craniofacial structures. Individual treatment plans to be devised for each patient. Prerequisite: consent of instructor.

Oral and Maxillofacial Surgery

Acting head: John C. Montgomery

Department of graduate studies: Kenneth S. Leibovitch

Caries, A. Zahn (Family Dentistry)

Director of predoctoral studies: Robert A. Peterson

Professor: Leslie H. Hays, James B. McCarthy, Dejaz, M.D., Robert A. Zahn

Preceptor-in-charge: Michael A. Haskin

Anesthesiologist: Robert A. J. Blosser, M.D.

Graduate program director: H. J. Mosier, M.D.

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training on an individual basis to the self-interests, abilities, and development of the student. Its predoctoral program is based in the College of Dentistry, with some clinical assignments in the Department of Oral and Maxillofacial Surgery at University of Iowa Hospitals and Clinics. Graduate study is based primarily in the Residency Training Program at University of Iowa Hospitals and Clinics.

Predoctoral Program

The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with known surgical skills, to enable the student to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts, clearly indicating the moral responsibility assumed for the patient's health. The clinical portion of the curriculum allows the student to develop surgical skills and apply the theoretical knowledge gained in the didactic courses. The theory and application of anesthesiology, nutrition, sedation, and oral anesthesia techniques are presented through both didactic and clinical experiences.

Graduate Programs

Residency Program

The aim of the residency program in oral and maxillofacial surgery is to provide preparation for specialty practice. The program is designed to combine clinical and didactic training on an individual basis. Every effort is made to adapt the program to the interests, abilities, and development of the individual student; however, it is essential to meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduação Training of the American Association of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been carefully considered in planning the structure and scope of training.

The residency program covers four years of hospital training, providing an orientation to the basic knowledge acquired in basic and clinical sciences, acquisition of the skills and knowledge of anesthesiology and the various aspects of health services. Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, in addition to hospital and clinical training, the resident takes advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology, and reviews closely-related disciplines such as neurology, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the accompanying clinical and operating room experience are important aspects of medical training.

The resident gains clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis and pharmacology, and anesthesiology assume greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.

Oral and Maxillofacial Surgery

Acting head: John C. Montgomery

Department of graduate studies: Kenneth S. Leibovitch

Caries, A. Zahn (Family Dentistry)

Director of predoctoral studies: Robert A. Peterson

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Predoctoral Program

The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with known surgical skills, to enable the student to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts, clearly indicating the moral responsibility assumed for the patient's health. The clinical portion of the curriculum allows the student to develop surgical skills and apply the theoretical knowledge gained in the didactic courses. The theory and application of anesthesiology, nutrition, sedation, and oral anesthesia techniques are presented through both didactic and clinical experiences.
The development and implementation of a research project under staff supervision enhances the value of the residency training.

The senior resident may be given responsibility for major oral and maxillofacial surgical cases during rotations in The University of Iowa Hospitals and Clinics and Veterans Administration Medical Center. Each third-year resident is assigned a current position as a clinical and didactic coordinator, and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

Master of Science
Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a four-year course of integrated didactic and clinical study, including a research project and the preparation of a thesis.

Admission
Students may begin the full four-year program only on July 1. The application deadline in oral and maxillofacial surgery is September 1 for admission on July 1 of the next year.

Applicants must meet the following requirements:
Graduate Record Examination (GRE)
Other Test is required.
The applicant must be a graduate of an accredited college of dentistry and be licensed to practice dentistry in the United States.

The applicant should be in the upper one-third of their graduating class. Additional documents required include application for graduate oral and maxillofacial surgery; application for medical school; letters of recommendation; and transcripts and letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references.

Interviews are not required but are strongly recommended.

Applicants may be appointed any time after the application has been completed and the staff elects to take official action. All appointments should be tendered on or before January 1 prior to the July 1 effective date.

The graduate admission office will send to the applicant an admission form to be completed for the Graduate College by approximately March 1.

Facilities
The University of Iowa Health Center has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The facilities of The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Center, and the colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Hospital Organizations
The organizational structure of University of Iowa Hospitals and Clinics includes a hospital dentistry clinical service with divisions of oral and maxillofacial surgery, family dentistry, pediatric dentistry, orthodontics, periodontics, oral/ maxillary anomalies, prosthodontics, endodontics, and diagnostic and oral pathology. The oral and maxillofacial surgery residency program and a one-year general practice residency are Conducted under the auspices of the Division of Oral and Maxillofacial Surgery and Division of Family Dentistry.

Courses
Dental Hygiene
87-41 Anatomy and Analysis
Principles and techniques of oral anatomy and oral medical history, techniques for x-ray interpretation, oral and pharyngeal anatomy and physiology, radiographic exposure, practical application of dental anesthesia techniques for dental hygiene students.

Predoctoral
87-114 Anatomy and Oral Pathology I
Principles and techniques of complete oral histology, gross and microscopic anatomy, oral and pharyngeal anatomy, radiographic interpretation, and practice techniques in the use of oral anesthetics.

87-150 Basic Oral and Maxillofacial Surgery
Basic principles and surgery; rationale and surgical exposure of the head and neck, principles of case management, emphasis on cardiovascular and respiratory physiology, pharmacology of anesthesia, and medical evaluation of patients for oral and maxillary surgery; practical techniques of oral wound closure.

87-145 Anatomy and Oral Pathology II
Principles and techniques of complete oral histology, gross and microscopic anatomy, oral and pharyngeal anatomy, radiographic interpretation, and practice techniques in the use of oral anesthetics.

87-155 Advanced Oral and Maxillofacial Surgery
In-depth management, diagnosis, and treatment of disease and systemic diseases of oral and maxillary surgery.

87-166 Clinical Oral and Maxillofacial Surgery
Clinical experience in oral surgery clinic at the College of Dentistry, University of Iowa Hospitals and Clinics, and Veterans Administration Medical Center.

87-180 Introduction to Hospital Procedures
Operations and exposure to the hospital environment in the Division of Family Dentistry at University of Iowa Hospitals and Clinics, treatment of dental patients in hospital setting.

Graduate
87-201 Hospital Procedures
Principles and techniques of complete oral histology, gross and microscopic anatomy, oral and pharyngeal anatomy, radiographic interpretation, and practice techniques in the use of oral anesthetics.

87-202 Basic Science Review
Basic principles and surgery; rationale and surgical exposure of the head and neck, principles of case management, emphasis on cardiovascular and respiratory physiology, pharmacology of anesthesia, and medical evaluation of patients for oral and maxillary surgery; practical techniques of oral wound closure.

87-207 Surgical Anatomy
Anatomy of the soft tissue and bone structures involved in major oral and maxillofacial surgery procedures; study of regional anatomy and related contributing factors to trauma and surgical emergencies, may include animal and human surgical anatomy.

87-209 Pulmonary and Aortic Control
Course in the use of surgical equipment involved in major oral and maxillofacial surgery procedures; open wounds and the control of complications associated with surgical emergencies, may include animal and human surgical anatomy.

87-213 Principles of Antibiotics
Review of literature on general antibiotics with study of agent and their effects on respiratory and cardiovascular systems.

87-215 Literature Seminars and Journal Club
Open to residents to cover scientific material in assigned journals.

87-213 Surgical Case Reports
Reports of case histories of patients treated.

87-214 Radiography Interpretation
Review of theory and techniques together with laboratory assignments.

87-215 Physical Diagnosis
Review of principles of physical diagnosis.

87-218 Oral Pathology Conferences
Review and discussion of current clinical applications.

87-219 Oral and Maxillofacial Surgery Seminar
Seminars on topics of interest to residents.

87-220 Oral and Maxillofacial Surgery Seminar II
Seminars on topics of interest to residents.

87-217 Oral and Maxillofacial Surgery Seminar III
Seminars on topics of interest to residents.

87-220 Oral and Maxillofacial Surgery Seminar IV
Seminars on topics of interest to residents.

87-221 Oral and Maxillofacial Surgery Seminar V
Seminars on topics of interest to residents.

87-222 Oral and Maxillofacial Surgery Seminar VI
Seminars on topics of interest to residents.

87-223 Oral and Maxillofacial Surgery Seminar VII
Seminars on topics of interest to residents.

87-224 Oral and Maxillofacial Surgery Seminar VIII
Seminars on topics of interest to residents.

87-225 Oral and Maxillofacial Surgery Seminar IX
Seminars on topics of interest to residents.

87-226 Oral and Maxillofacial Surgery Seminar X
Seminars on topics of interest to residents.

87-227 Oral and Maxillofacial Surgery Seminar XI
Seminars on topics of interest to residents.

87-228 Oral and Maxillofacial Surgery Seminar XII
Seminars on topics of interest to residents.

87-229 Oral and Maxillofacial Surgery Seminar XIII
Seminars on topics of interest to residents.

87-230 Oral and Maxillofacial Surgery Seminar XIV
Seminars on topics of interest to residents.

87-231 Oral and Maxillofacial Surgery Seminar XV
Seminars on topics of interest to residents.

87-232 Oral and Maxillofacial Surgery Seminar XVI
Seminars on topics of interest to residents.

87-233 Oral and Maxillofacial Surgery Seminar XVII
Seminars on topics of interest to residents.

87-234 Oral and Maxillofacial Surgery Seminar XVIII
Seminars on topics of interest to residents.

87-235 Oral and Maxillofacial Surgery Seminar XIX
Seminars on topics of interest to residents.

87-236 Oral and Maxillofacial Surgery Seminar XX
Seminars on topics of interest to residents.

87-237 Oral and Maxillofacial Surgery Seminar XXI
Seminars on topics of interest to residents.

87-238 Oral and Maxillofacial Surgery Seminar XXII
Seminars on topics of interest to residents.

87-239 Oral and Maxillofacial Surgery Seminar XXIII
Seminars on topics of interest to residents.

87-240 Oral and Maxillofacial Surgery Seminar XXIV
Seminars on topics of interest to residents.

87-241 Oral and Maxillofacial Surgery Seminar XXV
Seminars on topics of interest to residents.

87-242 Oral and Maxillofacial Surgery Seminar XXVI
Seminars on topics of interest to residents.

87-243 Oral and Maxillofacial Surgery Seminar XXVII
Seminars on topics of interest to residents.

87-244 Oral and Maxillofacial Surgery Seminar XXVIII
Seminars on topics of interest to residents.

87-245 Oral and Maxillofacial Surgery Seminar XXIX
Seminars on topics of interest to residents.

87-246 Oral and Maxillofacial Surgery Seminar XXX
Seminars on topics of interest to residents.

87-247 Oral and Maxillofacial Surgery Seminar XXXI
Seminars on topics of interest to residents.

87-248 Oral and Maxillofacial Surgery Seminar XXXII
Seminars on topics of interest to residents.

87-249 Oral and Maxillofacial Surgery Seminar XXXIII
Seminars on topics of interest to residents.

87-250 Oral and Maxillofacial Surgery Seminar XXXIV
Seminars on topics of interest to residents.
Orthodontics
Head: John S. Gale
Professors: George F. Arendsma, Szen E. Jacobs, Charles R. Kramenetz, Robert N. Nastor
Degree offered: D.M.S.

Predoctoral Program
The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnosis, and treat with competence simple malocclusions of the teeth.

Lecture courses guide the student in learning basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated and treatment appliances are fabricated.

The department supervises a volunteer program for clinical treatment of selected patients.

Graduate Program
The purpose of the graduate program in orthodontics is to educate specialists in diagnosis and treatment of malocclusions of the teeth requiring comprehensive care. The specialist should be familiar with and have the ability to critically analyze biologic, biomechanic, diagnostic, and treatment concepts in orthodontics.

Satisfactory completion of a 23-month period of intensive study, including lecture courses, seminars, clinical practices, and a research paper, qualifies a student for the Certificate of Orthodontics. If a student satisfactorily completes a thesis based on an original research project, he or she will qualify for an M.S. degree in addition to the certificate.

Opportunities are available for research and independent study in the department. Special facilities for research in biomechanics and craniofacial growth are available.

Interaction with other departments provides learning and research opportunities in surgical orthodontics, clinical tip in orthodontics, orthodontic treatment, speech pathology, animal experimentation, and human growth.

Admission
Admission requires the B.D.S. degree, or its equivalent, and satisfaction of Graduate College requirements.

The application deadline is in October for the class starting July 1. Applicants are required to come to the University for interviews with department faculty.

Courses
Predoctoral
88.115 Growth and Development 1.5 h.
Provides basis and introductory information about internal growth and development with emphasis on the craniofacial region.
88.135 Orthodontic Diagnosis and Treatment
1.5 h.
Introduction to various concepts of craniofacial biology basic to orthodontics and the philosophy of management of orthodontic problems. Topics include assessment of growth, development, and function, dental and facial problems, and methods of diagnosis and treatment planning. Growth and development in the dental arches, growth in the cranium, and the growth of the nasolacrimal and facial sinuses.
89.135 Orthodontic Laboratory
1.5 h.
Design and construction of orthodontic appliances: study of active and passive mechanics.
88.165 Orthodontic Treatment 1.5 h.
Fixes orthodontic treatment to the use of appliances for correcting orthopedic malocclusion that the general practitioner can handle in his or her office.
88.166 Orthodontic Geriatric Practice 1.5 h.
Case analysis designed to help students develop ability to differentiate between simple and complex orthodontic problems. Orthodontic classifications, diagnosis, and treatment planning considered in a context including the biologic considerations of systemic disease in the aging patient.
89.170 Orthodontic Clinic 2.5 h.
Clinical experience in orthodontic diagnosis, treatment, and laboratory treatment of patients with malocclusion appropriate for undergraduates: treatment, recent trends, experience diagnosis and treatment; students must be under the direct supervision of a clinician, and students must follow a formal educational program or practice under the supervision of a clinician.

Graduate
89.220 Control Theory and Craniomaxillofacial Surgery 3 h.
Explores students' general biologic perspective. Discussions of how this perspective is applied to clinical situations are included. Analysis, develop diagnostic perspectives or tools for applying the biologic perspective to the diagnosis of human homeostasis as a science.
89.232 Advanced Orthodontic Techniques 2 h.
Lecture and discussion on advanced orthodontic techniques, including specialized appliances, treatment of specific craniofacial problems, orthodontics treatment of craniofacial anomalies, and current treatment options.
89.240 Research: Orthodontic Treatment Planning and Therapy 3 h.
Doctoral research in orthodontic treatment planning and therapy. Includes oral topics such as research design, statistical analysis, and research methodology.
89.260 Advanced Orthodontic Technic 2 h.
Advanced orthodontic techniques related to the biologic factors involved in the planning and execution of orthodontic treatment.
89.264 Facial Orthodontics 2 h.
Anesthesia and surgery, and treatment of craniofacial anomalies, orthodontic treatment of craniofacial anomalies, and craniofacial anomalies.
89.265 Orthodontic Preclinical 2 h.
Orthodontic preclinical course of the orthodontic program.
89.280 Orthodontic Seminar 3 h.
Advanced topics, lectures, discussion, defense of oral research, and case histories presented by orthodontists. The focus is on research, or as determined by the orthodontic treatment.

Pediatric Dentistry
Head: Henry E. Feldman
Associate professors: James C. Crall, Stephen J. Goepferd, Mark E. Johnson
Clinical assistant professors: Donald B. Goodman, Kay S. Wellman
Assistant professor: Mary Beth Goodall
Degree offered: D.M.S.

The Department of Pediatric Dentistry provides instruction for dental and graduate students in the prevention and treatment of dental diseases in children. Instruction consists didactic, laboratory, and clinical experiences. It gives special emphasis to consideration of current literature and managing dental problems of handicapped children, and emphasizes efficient treatment through proper utilization of dental auxiliary personnel and record management.

Graduate Program
Graduate study in pediatric dentistry leads to both certification and a master's degree. The program gives special emphasis to preparation for certification by the American Board of Pediatric Dentistry. It is fully accredited by the Commission on

99.111 Pediatric Orthodontics 2 h.
99.122 Research Orthodontics 2 h.
99.201 Orthodontic Journal Club 2 h.
99.210 Surgical Orthodontic Seminar 2 h.
99.220 Craniomaxillofacial Surgery 2 h.
99.230 Craniofacial Asymmetry 2 h.
99.240 Orthodontic Geriatric Practice 1.5 h.
99.250 Basic Orthodontics for the Pediatric Dentist 1 h.

2 h.

Preclinical.

Pediatric Dentistry
Graduate Program
Dental Education of the American Dental Association.

Students are trained in all phases of pediatric dentistry, to permit them career choices in pediatrics, education, or research. Approximately 50 percent of the program is devoted to advanced clinical activity, 20 percent to didactic courses and practice teaching, and 10 percent to original research. The program covers a core of clinical and basic science courses, supplemented by elective selections determined by the student's individual interests.

Development of a minor subject area is recommended.

Close association with the Department of Pediatrics in the College of Medicine and with the University Hospital School and The University of Iowa Hospital and Clinics emphasizes on rehabilitation under general anesthesia, instruction in physical diagnosis, and management of developmentally disabled children.

Research Opportunities

Research carried out by faculty and graduate students in pediatric dentistry has been selected recently for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from Federal agencies and other sources. Significant contributions have been made in the areas of cariology, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Faculty

Faculty members hold numerous national and state offices, committee memberships, consultations, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Several faculty members are Diplomates of the American Board of Pediatric Dentistry.

Financial Aid

Significant support is available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission

Prospective students must apply to the Graduate College.
Opportunities are provided for experience in clinical and basic research. The certification program may be combined with the Ph.D. program.

Admission

Admission to graduate study in periodontics requires the D.D.S. degree or its equivalent, and satisfaction of Graduate College admission requirements. (See "Graduate College" section of the Catalog) National Dental Board Examination scores, if available, are required. Interviews are encouraged but not mandatory.

Facilities

The department has 20 modem, well-equipped laboratories devoted exclusively to periodontics, and access to hospital experience in the adjacent University of Iowa Hospitals and Clinics and the Veterans Administration Medical Center. Research facilities include a departmental research laboratory, and collegiate laboratories in histology and biochemistry, microbiology, and electron microscopy with EM and scan capabilities, and growth and development. These collegiate facilities are in addition to those available by arrangement in the University of Iowa Hospitals and Clinics, the Veterans Administration Medical Center, and in the basic science departments.

Financial Aid

The applicant must be financially prepared to undertake uninterrupted studies. Assistantships and loans are offered, depending upon available resources.

Courses

Dental Hygiene

210 Introduction to Periodontology 2 a.h.
Fundamental concepts of periodontology and the role of the dental hygienist in patient management. Emphasis on preventive care and patient education. Prerequisite: completion of clinical hygiene.

2120 Advanced Periodontia-Dental Hygiene 1 a.h.

Predoctoral

2140 Periodontal Method I 1 a.h.

2141 Periodontal Method II 1 a.h.

2180 Periodontia 3 a.h.
Comprehensive clinical management of periodontal disease. Prerequisite: completion of course 2120.

2181 Periodontology 12 a.h.
Comprehensive concepts of periodontology and the clinical management of patients covered by honors and seminar topics.

Graduate

2201 Advanced Periodontology 0.5 a.h.
Preparation of graduate students with comprehensive review of periodontal therapy. Offered summer sessions.

2202 Clinical Seminar I in Periodontology 0.5 a.h.
Comprehensive management of periodontal patient, with emphasis on treatment planning and case documentation and presentation for complete dental therapy; complex dental stress situations included. Required each fall and spring semester.

2205 Methods of Instruction in Periodontology 0.5 a.h.
Experience in course design in periodontics, including behavioral objectives and methods of instruction.

2207 Practice Teaching in Periodontology 0.5 a.h.
Practical experience in planning, seminar lecture, and clinical teaching in periodontology.

2208 Recent Advances in Periodontology 0.5 a.h.
Clinical and research advances in periodontology. Offered spring semester.

2210 Periodontology Pathology Seminar 0.5 a.h.
Emphasis on differential diagnosis and histopathology of oral diseases when encountered in clinical periodontal practice. Offered spring semester.

2211 Applied Oral Microbiology 0.5 a.h.
Review and extension of students' knowledge of microbiology as it applies to oral health problems. Offered spring semester.

2212 Biochemical Aspects of Periodontology 0.5 a.h.
Emphasis on biochemical aspects of periodontal disease. Offered fall semester.

2214 Dental Science Research Methodology 0.5 a.h.
Provides familiarity with practical procedures involved in planning and designing research and in the interpretation of research results. Offered spring semester.

2217 Dynamics of Oral Soft Tissues 0.5 a.h.
Review of methods and techniques used in the association of periodontal soft tissue.

2218 Methods for Advanced Studies of Oral Tissues 2 a.h.
Concepts of advanced research techniques that have led to present concept of structure of selected dental tissues and materials. Offered spring semester.

2220 Periodontology Literature Review I 0.5 a.h.
Offered fall semester of even years.

2221 Periodontology Literature Review II 0.5 a.h.
Offered spring semester of odd years.

2222 Periodontology Literature Review III 0.5 a.h.
Offered fall semester of even years.

2223 Periodontology Literature Review IV 0.5 a.h.
Offered spring semester of odd years.

2230 Research Periodontology 0.5 a.h.
Preparation for original research project and completion of thesis.

2231 Thesis Preparation in Periodontology 0.5 a.h.
Comprehensive clinical management of the periodontal patient, with emphasis on the entire case. Required each semester.

2240 Advanced Clinical Periodontia 0.5 a.h.
Comprehensive clinical management of the periodontal patient, with emphasis on the entire case. Required each semester.

Predoctoral Program

Programs in preventive and community dentistry are designed to increase dental students' awareness of urgent health needs and to encourage them to develop and implement approaches to alleviate these needs. Extramural programs provide students with opportunities to interact with health care teams and members of communities in Iowa. The department conducts full-time off-site extramural programs throughout the state. Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make them aware of the societal obligations they must assume in order to practice effectively. Included is the department's resources in a mobile dental van designed for geriatric programs. The van, operated throughout the state of Iowa, provides senior dental students a unique experience with this age group.

Graduate Program

The Master of Science degree program is designed to prepare students in community dentistry and dental public health with emphasis on research. In addition to the clinical track emphasizing geriatric dentistry, it is concurrently available. The program is designed to allow students to achieve a high degree of professional competence in their respective area of research. Successful graduates will have met educational requirements necessary to establish their eligibility for the American Board of Dental Public Health. The program requires a minimum of 51 semester hours of course work that includes a thesis containing original research. Students should expect to take two additional years to complete all degree requirements.

Preventive and Community Dentistry

Acting head: Nelson B. Logan

Professors emeriti: Hakon C. Eeg, W. Philip Flood


Assistant professor: Hed Str&Euml;m

Clinical instructor: Howard Cowan

Degree offered: M.S.
Graduate Program

The Master of Science degree program prepares the specialist for a career in education and research. The requirements are flexible, permitting the development of a plan of study that will fill the individual needs of each student. Each student is required to prepare a thesis based on original research and pass an oral and/or written comprehensive examination. The student's advisor serves as chair of the examining committee. The student is required to meet all the requirements for the master's degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Minimum requirements for admission to the program correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its foreign equivalent.

Courses

Predoctoral

86:030 Removable Prostodontic Techniques Laboratory 3 a.h.
Therapy and manipulation of dental materials with basic applications. Same as BU 279.

86:140 Removable Prostodontic Techniques Lecture 3 a.h.
Technical procedures in construction of complete and removable partial dentures.

86:141 Removable Prostodontic Techniques Laboratory 3 a.h.
Laboratory exercises in construction of complete and removable partial dentures.

86:150 Removable Prosthodontics 4 a.h.
Clinical and laboratory instruction in complete and removable partial dentures.

Graduate

86:220 Completed Denture Seminar I 1 a.h.
Review of current research in principles, procedures, and concepts of complete denture construction.

86:221 Removable Partial Dentures Seminar I 1 a.h.
Review of current research in principles, procedures, and concepts of removable partial denture construction.

84:027 Complete Denture Seminar II 1 a.h.
Review of past research in principles, procedures, and concepts of complete denture construction.

84:030 Research: Removable Prosthodontics Seminar 4 a.h.
Lecture, seminar, practical applications, and data collection for selected research projects.

84:221 Thesis Preparation: Removable Prosthodontics 4 a.h.
Preparation and defense of thesis from research project.

86:240 Advanced Clinical Removable Prosthodontics 4 a.h.
Treatment of patients requiring complete and removable partial dentures.

86:241 Technique Methods: Removable Prosthodontics 4 a.h.
Assignments and projects involving technical methods in construction of complete and removable partial dentures.

86:242 Practice Teaching: Removable Prosthodontics 4 a.h.
Clinical and classroom teaching experience assigned by advisor.

86:239 Journal Club 1 a.h.
Review of current literature in prostodontics.

86:251 Library Assignment: Removable Prosthodontics 4 a.h.
Discussion of assigned readings that are considered classics in removable prosthodontics literature.
College of Education

Lindquist Center

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   Education.................................281
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   Continuing Education....................290
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   Foundations.............................254
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Dean: Charles W. Case
Associate deans: Robert M. Pfeil, R. Jernagin
Associate deans: Laurence A. Van Dyke
Director, Iowa Testing Program: Leonard
Fildt
Director, Educational Placement: Judith D.
Henderson
Degrees offered: B.A., B.S., M.A.T., M.A., M.S.,
Ph.D.
The nation's first university-level professional 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 in the basic pattern which governs it today, was founded in 1913. The growth of the college has corresponded to the growth of the University.
Faculty members have been leaders in a variety of educational fields. Particularly noteworthy are the early developments in educational testing and measurement, which helped lay the foundation for the present day educational testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.
The college has seven divisions: Counselor Education; Early Childhood and Elementary Education; Educational Administration; Foundations; Postsecondary and Continuing Education; Psychological and Quantitative Foundations; Secondary Education; and Special Education.
The college is accredited by the National Council for Accreditation of Teacher Education (NCATE) for the preparation of elementary and secondary teachers and other professional school personnel, with the doctorate the highest degree approved. Teacher preparation programs are also reviewed and approved by the Iowa Department of Public Instruction.

Teacher Education Programs

The College of Education at The University of Iowa offers seven Teacher Education Programs, each of which leads to a state of Iowa teaching certificate. Five of the programs involve earning a College of Education major. They are:
- Early Childhood Education
- Elementary Education
- Health Education
- Special Education
- Secondary Education

The other two programs are teaching endorsement programs, one in the teaching of handicapped children at the preschool level, the other in the teaching of subject areas at the secondary level. To receive an endorsement to teach at the secondary level, a student must complete an appropriate major in one of the departments of the College of Liberal Arts and all professional course work required by the College of Education. To receive an endorsement to teach the preschool handicapped, a student must complete a major in early childhood education.

All students admitted to a Teacher Education Program (TEP) must complete College of Liberal Arts General Education Requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies.

Undergraduate Admission to Elementary and Secondary Teacher Education Programs

Undergraduate applicants to The University of Iowa who are interested in becoming teachers should indicate their proposed College of Education major or their interest in a secondary-level teaching endorsement program on the application for admission. Students already enrolled at the University who decide to enter a Teacher Education Program (TEP) and who meet eligibility requirements, should submit an application to the Office of Student Services, N310 Umintz Center.

General Requirements

Before being formally admitted to a Teacher Education Program, an undergraduate student must have:
- Been admitted to The University of Iowa as a degree candidate;
- Completed the American College Tests (ACT).

Attained sophomore standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses;

Achieved a 2.3 grade-point average on all college course work and course work completed at The University of Iowa and

Submitted an Application for Admission to a Teacher Education Program.

Additional Requirements for Admission to Special Education

Students seeking a major in the elementary mentally retarded program must also earn a major in elementary education. Students seeking a major in the secondary-level mentally handicapped program do not need to complete a second major. For each of these programs students must meet the general admission requirements of the undergraduate Teacher Education Program.

Enrollment in each of the special education programs is limited to a fixed number of students. Applicants who meet the minimum general requirements for a Teacher Education Program are then chosen for each special education program on a competitive basis. The selection procedures are as follows:

Application deadline is May 15 preceding the academic year in which the applicant plans to enroll.

Applicants for the elementary mental retardation, secondary mental retardation, or preschool handicapped program will be ranked on the basis of cumulative college grade-point average. Further, students with documented successful experience with the handicapped will be given preference over applicants without experience. Forms for documenting successful experience may be obtained from the Division of Special Education. Students wishing to gain experience prior to applying should contact the Division of Special Education for a list of ways to gain such experiences in the Iowa City area.

Twenty students will be admitted each year to the elementary mental retardation program. Fifteen students will be admitted each year to the secondary mental retardation program. Twenty students will be admitted each year to the preschool handicapped program. The admission process will take place as soon as spring transcripts become available to the Division of Special Education. All students will be notified by mail (usually about July 1) expressing their admission to programs.

Late applications will be considered on a first-come, first-served basis only when progress-quotas are not filled.

Students transferring to The University of Iowa from special education programs at other colleges or universities may be admitted to second year courses only if space permits.

Graduate-Level Admission to Teacher Education Programs

Students who have completed a baccalaureate degree may be admitted to a Teacher Education Program in one of two ways:

They may apply to the Graduate College with their objective stated as "certification only," or they may apply to the Division of a Masters in Arts in Teaching (M.A.T.) objective. Students selecting this route must satisfy the following conditions:

Admission to the Graduate College;

A cumulative grade-point average of not less than 2.5 in undergraduate work, 3.0 H.A.T., objective.

Admission to a specific certification program (e.g., elementary education, special education, or secondary English).

They may apply to the College of Liberal Arts as a postbaccalaureate student with senior standing. Students selecting this route should not apply as special students. They must apply to the appropriate Teacher Education Program following the undergraduate admission procedure and must meet the general requirements stated in the undergraduate admission section.

Student Teaching

The final phase of the Teacher Education Program is the professional semester devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teachers' experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with approval in advance.
Graduate Programs
Graduate study in the College of Education is guided by the general regulations of the Graduate College, with certain additional requirements imposed by the faculty of the College of Education. Graduate students in education register in the Graduate College and receive their degrees from that college.

Master of Arts
The College of Education offers a Master of Arts degree on both a thesis and nonthesis basis in each of the divisions. The nonthesis M.A. program usually provides more specialized course work than is found in the M.A. thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral level are urged to select the M.A. thesis program, which offers more experience in research procedures. Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of additional preparation and readiness of skills to their advisor or division during the early part of their doctoral program.

Master of Science
Thesis and nonthesis programs are available for students who want a science concentration. The degree objectives and the use of the programs are similar to those above for the Master of Arts degrees.

Master of Arts in Teaching
The M.A.T. program is a 38 semester hour (minimum) nonthesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate programs. The program leads to a master's degree and certification as a secondary teacher in such fields as English, foreign languages, home economics, and science. A grade-point average of at least 3.0 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student's proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (not less than 25) must be taken to satisfy certification requirements.

Education Specialist
This degree is granted upon the completion of a prescribed two-year, post-certiicate program designed for educators preparing themselves professionally in such fields as teaching, administration and supervision, and special services. Of the minimum of 60 semester hours required for the degree, 28 are prescribed in the area of specialization; the remaining credit may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report. Other requirements and regulations applicable to the E.D.S. are the same as for the master's degree, except that 15 semester hours of resident work on campus are required in one 12-month period or in two summer sessions, and course work completed two years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of the program requirements.

Doctor of Philosophy
The Ph.D. is the highest academic degree and is conferred upon those students who have demonstrated a broad and mature understanding of their discipline and mastery of research skills in course work and have successfully completed the dissertation.

Professional Improvement
Students may be admitted to a professional improvement program for purposes of taking limited course work rather than a degree program. This program provides for meetings, seminars, and workshops for persons seeking salary credits, who are undecided about career plans, or those applications are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to this program rather than as degree candidates due to incomplete on-campus, undergraduate degree objectives and the like, in order to permit registration in the University.

Bulletin
Prospective graduate students should write to the College of Education for its bulletin, Advanced Study in Education, which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.
Support Units and Special Resources

The Computer Resources Laboratory offers hardware and consulting support for computer applications and instructional development related to the curricula of the College of Education. The Curriculum Resources Laboratory provides materials primarily for students and faculty members interested in early childhood, elementary, and secondary instructional materials. It brings into a convenient central location approximately 27,000 items of text, reference books, courses of study, bibliographies, pamphlets, and non-print media such as filmstrips, games, records, and microcomputer software. The laboratory also houses a 25,000-volume youth-oriented library.

The Audiovisual Production Laboratory houses a variety of instructional equipment and materials. It facilitates presentations and opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition to the laboratory staff members, students and faculty members may request Valley Films and other audiovisual materials that pertain to the College of Education or are of educational interest.

The Visual Production Laboratory offers a wide variety of audio and video services. These services range from equipment checkout and micro-teaching facilities use to the design and production of high quality visual and auditory programs. The laboratory also offers workshops and credit courses through the College of Education. The Educational Placement Office assists students and alumni seeking teaching positions at all levels and in all fields. Services include individual consultation and group assistance with job search skills and employment opportunities, and a current list of openings. Placement specialists coordinate placement for students completing required courses with school recruiters on campus. An informational center with resources covering career information, directories of schools, colleges, and agencies, and community and state data is available for students planning careers in education and related areas.

The Main Library and the Psychology Library provide books, periodicals, reference books, CD-ROM microfiche, tests, and a reserved book room for students and faculty.

The Iowa Testing Program's staff develops standardized educational tests, such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics. The North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States. Iowa is one of 19 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels by self-examination of educational programs, evaluation by evaluation teams and adherence to policies and standards for continued membership. The University of Iowa and Iowa State University of Iowa are State members of the NCA.

Graduate Assistantships

Graduate assistantships provide financial support for students in the Department of Psychology, Speech, and Communication. There are assistantships available for graduate students in education.
Counselor Education/EDUCATION

A personal or telephone interview may be requested.

Three current letters of recommendation from persons in a position to assess the applicant’s prospects for completing the M.A., Ed.S., or Ph.D., as well as an indication of serious commitment to the profession.

In addition to the above:

M.A. Candidates

Undergraduate grade-point average of 2.75 or better and a Composite (verbal and quantitative) CB score of 1000 or better.

Ed.S. Candidates

A graduate grade-point average of 3.25 or better and a Composite (verbal and quantitative) CB score of 1000 or better.

Ph.D. Candidates

Undergraduate grade-point average of 3.0 or better or a graduate grade-point average of 3.3 or better if a graduate degree has been completed. Composite (verbal and quantitative) CB score of 1100 or better.

Typically, doctoral students are not admitted unless they have completed a master’s degree in counseling or related field. Relevant work experiences are important. In those cases where a student is accepted without a master’s or a master’s unrelated to counselor education, core level master’s level coursework will be completed before taking doctoral level advanced courses. Master’s level courses and experiences to be completed are typically up to the advisor and included in a student’s curriculum plan.

International Students

International students must also provide a Test of English as a Foreign Language (TOEFL) score with their applications. A minimum score of 550 is required. Depending on the TOEFL score, the division may require students to take and pass coursework in English usage at the University of Iowa that is designed especially for them.

All the criteria listed above are considered minimum standards for consideration for admission. Final decisions on admissions are made by faculty committees and take into account the composite as an indicator of a student's likelihood for success in the division. Also, some programs may have specific admissions requirements due to certification standards. For example, a teaching certificate is required for students pursuing a degree in counseling. Any additional admissions requirements are listed with individual programs.

Conditional Admissions

Applicants who do not meet all the minimum requirements for regular admissions consideration may be admitted on a conditional basis if the faculty determines that there are strength and promises warranting conditional status. The following are divisional conditions:

M.A. Level—A student must complete three semester hours of core courses (approved by advisor) over two consecutive semesters and earn a minimum cumulative grade-point average of 3.0.

Ph.D. Level—A student must complete 12 semester hours of core courses (approved by advisor) over two consecutive semesters and earn a minimum cumulative grade-point average of 3.3.

Application Deadlines

M.A. and Ed.S.—June 1 for fall semester (rehabilitation counseling only admits for fall semester); November 1 for spring semester; April 1 for summer session;

Ph.D.—March 1 for fall semester.

Applications must be complete before they will be reviewed. The applicant is responsible for providing a complete application dossier. Application forms may be picked up from the Division of Counselor Education Secretary, N100 Lindquist Center, University of Iowa, Iowa City, IA 52242, phone (319)335-3070. In order to check on whether an application dossier is complete contact Office of Student Services, N100 Lindquist Center, University of Iowa, Iowa City, IA 52242, (319)335-0540.

Admission applications will be acted upon immediately after each deadline and applicants will be notified in writing. Applicants who are accepted must reply in writing in order to maintain their admission status.

Maintaining Candidacy—M.A., Ed.S., and Ph.D.

All graduate students must meet the following standards in order to maintain their candidacy for degree:

M. A. and Ph.D. candidacy must be maintained each semester.

M.A. — To maintain candidacy at the graduate level in the curriculum plan: M.A. — Ed.S. — 3.0, Ph.D. — 3.3.

Successful completion of practicum, internship, or equivalent professional experience;

Maintain professional behavior consistent with the AASCD Code of Ethics, and any additional code of professional ethics adhered to in any agency in which the student is completing a practicum or internship;

Demonstrate progress toward the degree as evidenced by successful completion of hours as specified in curriculum plan.

Progress toward the degree entails active registration each semester. Exceptions may be approved by the advisor.

NOTE: All division students are reviewed annually.

Probationary Status

Any M.A. student who receives less than an overall 3.0 grade-point average or Ph.D. student less than a 3.3 grade-point average will be on probation status. A student on probation status has two consecutive semesters to raise the grade-point average. If the probationary status is not met, the student may be removed from the program. Each student is allowed one probation status during his or her program of study.

Student Development in Postsecondary Education

Master of Arts

The M.A. program provides preparation for college positions in admissions, student activities, financial aid, student union, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education, and external degree programs, and, with experience, as staff director of college teachers.

No specific program of undergraduate study or work experience is required for admission to the M.A. program. A personal interview is desirable, but not required.

Education Specialist

The Ed.S. program provides specialized professional preparation in college student development beyond the master’s level for persons not planning to enter doctoral study to prepare candidates for positions such as associate dean or dean of students in a small college or director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling services, adult continuing education, external degree programs, and, with experience, as college teachers.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor-educator, researcher, associate dean or dean of students, or as director of admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling service.
Substance Abuse Counseling

Master of Arts

The purpose of the M.A. program in substance abuse counseling is to prepare individuals to function in a wide variety of substance counseling settings. The emphasis is on individual, group, and family counseling.

Facilities

A wide variety of counselor education practicum experiences is available in a large number of settings in neighboring community agencies, schools, and colleges, as well as in many agencies throughout the University.

Financial Aid

Depending on federal funding, graduate training fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counseling Education hold a wide variety of graduate assistantships. For example, many of the University’s student service units award part-time assistantships to graduate students in all the divisions. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Courses

7C35 Making a Vocational-Educational Choice

3 s.h.

7C36 Student Development for Residence Hall Staff

1-2 s.h.

7C38 Supervision Practicum

practicum with suitable students in appropriate counseling, social work, and other human services organizations. Coursework includes skills in supervised practice, self-evaluation, and exploration of the world of work.

7C38 Student Development for Residence Hall Staff

practicum with suitable students in appropriate counseling, social work, and other human services organizations. Coursework includes skills in supervised practice, self-evaluation, and exploration of the world of work.

7C38 Introduction to Peer Counseling

3 s.h.

7C39 Career Exploration

3 s.h.

7C40 Career Counseling and Job Placement

3 s.h.

7C41 Process of Change and the Consumer

3 s.h.

7C42 Measuring Prejudice in Counseling

3 s.h.

7C43 The Empirical Nature of Counseling

3 s.h.

7C45 Evaluation of Counseling Techniques

3 s.h.

7C46 Career Counseling and Job Placement

3 s.h.

7C47 Theoretical Foundations of Counseling

3 s.h.

7C48 Practice of Counseling

3 s.h.

7C49 Career Exploration

3 s.h.

7C50 Process of Change and the Consumer

3 s.h.

7C51 Measuring Prejudice in Counseling

3 s.h.

7C52 The Empirical Nature of Counseling

3 s.h.

7C53 Evaluation of Counseling Techniques

3 s.h.

7C54 Career Counseling and Job Placement

3 s.h.

7C55 Theoretical Foundations of Counseling

3 s.h.

7C56 Practice of Counseling

3 s.h.

7C57 Career Exploration

3 s.h.

7C58 Process of Change and the Consumer

3 s.h.

7C59 Measuring Prejudice in Counseling

3 s.h.

7C60 The Empirical Nature of Counseling

3 s.h.
range of potentially focusing personal attention. After all, people. Students become familiar with current literature on depression and anxiety. They also develop strategies to cope with depression and anxiety.
Undergraduate Programs

Students pursuing a major in elementary education or in early childhood education may elect to meet requirements for either the B.A. or the B.S. degrees. The B.A. degree requires four semesters of study or the equivalent in one foreign language. All other respects the B.A. and B.S. degree requirements are identical. Required by the elementary program only:

22M40 Theory of Arithmetic 3 s.h.

Required by both programs are the following foundations courses, which should be completed by the sophomore year:

7F:75 Educational Psychology and Measurement 3 s.h.
7E:130 Introduction to Elementary and Early Childhood Teaching 3 s.h.
7W:91 Audio-Visual Equipment for Instruction 1 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.
A course in American history or American politics 3-4 s.h.

Also required, usually completed during the junior or senior year, is the following:

7L:170 Human Relations for the Classroom Teacher 3 s.h.

Early Childhood Education

Early childhood teachers serve in a variety of organizations, including pre-kindergartens and kindergartens in the public school system, Head Start and other publicly funded pre-kindergarten classes or day care centers, and privately funded early childhood centers serving children from infancy to the third grade.

Preparation for early childhood teaching includes the study of child development, parent-child relationships, and the organization and administration of childcare centers, in addition to appropriate curriculum and methodology for young children. The program requires a minimum of four practical experiences with children of different ages within the early childhood years in public or private early childhood centers or classrooms. This program meets the requirements of the Iowa Endorsement 52 for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergarten and elementary level should elect the elementary education major described in a subsequent section of the Catalog and its related academic area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 52 (K-3) and 51. Students interested in dual certification as teachers of pre-kindergarten and kindergartens and pre-school handicapped children should refer to "Special Education" in this section of the Catalog. Separate application for admission to this program must be made to the division of Special Education. A student who successfully completes this combination is eligible for Iowa Endorsements 53 and 9.

In addition to the foundations courses listed above, the following must be completed before student teaching:

17:100 Growth and Development of the Young Child 3 s.h.
17:106 Child Development 3 s.h.
17:124 Nutrition with Children 3 s.h.
(Same as 7L:102)
7E:120 Methods and Materials: Music for the Classroom Teacher 3 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 3 s.h.
7E:123 Literature for Children I 3 s.h.
7E:137 Methods: Early Childhood Education I 3 s.h.
7E:92 Pre-Kindergarten Practicum, Pre-Kindergarten (Corequisite: 7E:157) 3 s.h.
7E:167 Methods: Early Childhood Education II 3 s.h.
7E:31 Pre-Kindergarten Practicum, Pre-Kindergarten (Corequisite: 7E:167) 3 s.h.

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow:

17:114 Parent-Child Relationships 3 s.h.
7U:133 The Culturally Different in Educational Settings 3 s.h.
7E:165 Methods: Multicultural, Bilingual Education 3 s.h.
7E:195 Multicultural Concepts and Educational Systems 3 s.h.
7E:180 Development and Administration of Child Care Centers 3 s.h.

Students must also take a minimum of three courses (9 semester hours) in one of the following areas of specialization: child and family services, the family, child development, and pre-school handicapped children. Copies of specialization requirements are available in the Division of Early Childhood and Elementary Education office. These courses may be taken to qualify if they are offered with that option.

One full semester of student teaching (15 semester hours) is required. The appropriate student teaching assignment is determined by the student's academic advisor in consultation with the student. Students should submit student teaching applications to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching.

Elementary Education

Elementary teachers serve in a variety of school settings, including self-contained rooms in which the teacher assumes responsibility for most of the curricular areas, departmental positions in which their responsibilities are concentrated in one or two subject areas, and team teaching assignments in which two or more teachers assume shared responsibility for the total instructional endeavor.

Preparation for elementary teaching involves the acquisition of a broad general education background, in-depth study of at least one elementary curriculum subject area, and professional study of the learning processes, selection and approval of curriculum materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. The program's study is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed specifically to prepare students to teach kindergarten through sixth grade. Special sequences are also available for students seeking the pre-kindergarten/kindergarten endorsement and for those seeking approval for teaching in middle schools or junior high schools. Students interested in certification for elementary teaching and approval for special education should note the requirements for admission to each of these programs. Students interested in this concentration are advised to make an appointment with one of the faculty advisors.

The foundations courses listed earlier in this section are required. All courses must be taken concurrently with 7E:100 Introduction to Elementary and Early Childhood Teaching, is the following:

7E:91 Pre-Kindergarten Practicum, Elementary Education.

(To meet the foundations requirements, graduate students may seek equivalent graduate studies credit with the approval of their advisor.)

The student must complete the following elementary methods courses to be eligible for student teaching:

7E:140 Methods: Elementary School Language Arts 3 s.h.
7E:150 Methods: Elementary School Social Studies 3 s.h.
7E:162 Methods: Elementary School Science 2 s.h.
7E:153 Methods: Elementary School Mathematics 2 s.h.
7E:194 Methods: Elementary School Reading 3 s.h.

An area of specialization is required in a teaching field. The area of specialization taken as an elementary major is early childhood education, bilingual education, early childhood health education, elementary language arts, elementary mathematics, multicultural...
education, elementary music, elementary reading, elementary physical education, elementary science, elementary social science, special education, and elementary generalist.

The student should consult his or her adviser to determine course requirements. Preparation for teaching in a subject area and meet the specific requirements for that area, Copies of the requirements for each area of specialization and enrollment office of Early Childhood and Elementary Education office. Courses in the area of specialization may be taken pass-fail even if they are offered with the pass-fail option.

Required is a minimum of 15 semester hours in credit student teaching. Students should apply to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching.

Students should consult with their advisers concerning the appropriate registration pattern.

Graduate Programs

Master of Arts

Early Childhood Education

The program is designed to prepare persons to administer and deliver care and guidance to children from infancy through the early primary grades in private and public settings, or to serve as early childhood consultants or community college teachers. A course of study is focused on the education and development of young children, in colleges of education, home economics, social work, or child development.

A core of courses (or their equivalents) is required of all students: TE-189 Development and Administration of Child Care 3 s.h.
TE-344 Building Foundations for Reading: Pre-Primary and Primary 2-3 s.h.
TE-267 Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
TE-396 Curriculum Development in Pre-Kindergarten 3 s.h.
TE-398 Comparative Early Childhood Education 3 s.h.

In addition, a course in each of the following two areas is required: parent-child relationships and family development, and child development and psychology. The remainder of the required 32 semester hours (20 with thesis) are electives mutually chosen by the student and the academic adviser.

Elementary Education

This degree program, which may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to work as team teachers, grade level or subject area supervisors, or curriculum consultants. Successful completion of this degree, together with four years of successful teaching experience, qualifies the student for certification as an elementary school supervisor, Iowa Endorsement 10. Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in either early childhood or elementary education.

Each candidate must elect at least one course in each of these areas: social foundations, curriculum, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected course work in advanced methodology.

Graduate students who have not completed an undergraduate program in elementary education may be admitted initially as "certification only" candidates.

Developmental Reading

This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 94. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum).

The following are required of all candidates:
TE-171 Reading Clinic: Teaching Techniques 2-3 s.h.
TE-172 Reading Clinic: Teaching Practicum 2-3 s.h.
TE-264 Building Foundations for Reading: Pre-Primary and Primary 2-3 s.h.
TE-395 Supervision of Intermediate Grade Reading and Curriculum 3 s.h.
TE-394 Methods of High School Reading 2-3 s.h.
TE-294 Seminar: Secondary Reading or TE-306 Seminar: Research and Current Issues (Reading) arr.

In addition, candidates must complete one or more courses each in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the adviser's approval.

Master of Science

Elementary Science

This degree program is designed to prepare master's degree candidates in elementary science to serve as team or departmental science specialists. The program may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum).

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.

The following are required of all candidates:
TE-255 Science Education: Issues, History, and Rationale 3 s.h.
TE-256 Science Education: The Nature of Science 3 s.h.
TE-257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
TE-258 Science Education: Research Models and Conceptual Schemes 3 s.h.
TE-292 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

Science courses to complete the number of semester hours required are selected by the candidate in consultation with the academic adviser.

Doctor of Philosophy

Elementary Education

The purpose of this program is to prepare candidates for college and university teaching and research positions in elementary education, for research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies.

The program requires a minimum of 90 semester hours, including hours earned for the dissertation. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the adviser and the division chair.

As a general guideline, each student is expected to have a good general background in all facets of elementary school education and a very strong area of specialization in at least one facet.

Currently selected specialization areas are elementary school administration, children's literature, early childhood education, foreign language arts, mathematics, reading, and social studies.

Each doctoral student must also complete a cognate or related field of concentration. The external field may be a professional specialization, such as educational psychology and measurement, special education, or general school administration; or it may be a subject field, such as English.
In addition, all students must demonstrate competency with respect to appropriate research tools, most commonly statistical analysis and data processing.

Assistantships
A number of teaching assistantships are available for graduate students pursuing advanced programs in early childhood and elementary education. Specific assignments vary. Some involve supervising undergraduate classes as well as tutorials and grading assignments. Students applying for assistantships should review the assistantship list and complete the application process. Graduate students with assistantships must register for a minimum of 6 semester hours per semester. Graduate students with assistantships must register for a maximum of 12 semester hours of credit per semester. Graduate students with assistantships must register for a maximum of 6 semester hours per semester.

All assistantships are reviewed on a competitive basis. To be considered for an assistantship an applicant must be actively involved in and graudate research and graduate students must be actively involved in and must have been accepted in an approved program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Courses

**TELI: Growth and Motor Development**
2 a.h. Theoretical bases for physical education program planning and instructional methods for physical education. For physical education majors only. Offered spring semester. Prerequisites: TELI 26, 27 a. Consent of instructor. Same as TELI 207.

**TELI Methods and Materials: Elementary School Physical Education**
3 a.h. Discussion of various curriculum planning for elementary school physical education. For physical education majors only. Offered spring semester. Prerequisites: TELI 26, 27 a. Consent of instructor. Same as TELI 207.

**TELI: Pre-Education Practice**
2 a.h. Experience during the fall semester. For students in the early childhood education program. For students admitted to the early childhood education program. Same as TELI 235.

**TELI Pre-Education Practices, Kindergarten and Early Childhood **
3 a.h. Students spend two days per week for two weeks participating in a kindergarten and two days per week participating in a preschool. Open only to early childhood education majors. Assignments to centers are made at the beginning of the fall semester. Same as TELI 235.

**TELI: Introduction to Early Childhood Education**
3 a.h. Overview of elementary and early childhood education including early childhood education, the development and role of the early childhood education teacher, the history of early childhood education, and the relationship of early childhood education to other fields of study. Same as TELI 75.

**TELI: Introduction to Education**
3 a.h. Basic correlation of field of education, consideration of administrative organization, instructional procedures, and consequences of professional life in education and secondary school. Same as TELI 75.

**TELI: Nutrition Work with Children**
1 a.h. Approaches and techniques related to nutrition and health education. Offered spring semester. Same as TELI 141 or consent of instructor. Same as TELI 75.

**TELI: Administration and Curriculum in Physical Education**
3 a.h. Offered spring semester. Same as TELI 141 or consent of instructor. Same as TELI 75.

**TELI Essential Methods in Speech and Hearing**
3 a.h. Various subjects for the elementary grades. Introduction to phonological development, speech production, and auditory discrimination, including the integration of these concepts. For the elementary school or early childhood education major. Same as TELI 75.

**TELI Language and Literacy as Instructional Studies**
3 a.h. Instruction to materials and activities available for introducing environment studies in the K-12 curriculum. Include materials and activities with emphasis on word recognition, vocabulary development, and early language development. Same as TELI 75.

**TELI: Regularizing Folk Music**
2 a.h. Development of gesture and sense, musical skills. Same as TELI 141 or consent of instructor. Same as TELI 75.

**TELI Methods and Materials: Music for the Classroom Teacher**
3 a.h. Development of music skills, techniques, and knowledge of methods and materials for teaching music to young children. For elementary and early childhood education majors. Same as TELI 75.

**TELI: Methods and Materials: Art for the Classroom Teacher**
3 a.h. Teaching skills related to assessment, children's creation of visual materials. For the classroom teacher. Same as TELI 75.

**TELI: Methods and Materials of Teaching Children's Dance**
2 a.h. Providing creative movement experience for the elementary school child. Same as TELI 75.

**TELI: Methods and Materials of Teaching Elementary Education**
2 a.h. Principles and problems related to the teaching of elementary education. Same as TELI 75.

**TELI: Parent Teacher Communication**
2 a.h. Same as TELI 75.

**TELI: Special Education for Teachers**
3 a.h. Involves a study of physical, mental, emotional, and social disabilities in teaching children. Same as TELI 75.

**TELI: Physical Education for the Elementary School**
2 a.h. Study of physical education for first through sixth grade children. Same as TELI 75.

**TELI: Assessing the Classroom Visual**
3 a.h. Student teachers work with students, classroom teachers, and administrators. Includes study of course development, methodology, perception, skill, and skill development, classroom development, evaluation, and learning experience. Same as TELI 75.

**TELI: Methods: Art**
2 a.h. Basic correlation of field of education, consideration of administrative organization, instructional procedures, and consequences of professional life in education and secondary school. Same as TELI 75.
TE-017 Reading Clinic: Teaching Practices 2.0 a.h.
Practice in application of diagnostic reading techniques.
Instrumental: TELL, K-12, C. Gravett, Child Development.

TE-018 Teaching Elementary School Mathematics 2.0 a.h.
Study of the elementary school mathematics curriculum, with special concern for identifying major children's mathematical ideas and developing instructional strategies in mathematics. Credit is given for the development of instructional sequences, remediation and enrichment, and test and research materials. Prerequisite: TE-013, or competency in mathematics. Credit is given for the development of instructional sequences, remediation and enrichment, and test and research materials.

TE-019 Skill Development, Social Skills 2.0 a.h.
Focuses on teaching a specific skill or set of skills to enable students to successfully compensate for the social skills that may be lacking.

TE-020 Developing Communication Skills 2.0 a.h.
Explores various methods of teaching communication skills through verbal, written, and visual/auditory media, in a range of paraprofessional settings, to meet the needs and interests of students. Focuses on the development of instructional methods in printing, written, and oral communication skills.

TE-020E Teaching Elementary School Reading 2.0 a.h.
Study of elementary school reading curricula with emphasis on the development of skills in reading and the development of a reading program. Focuses on the development of instructional methods in reading and the development of a reading program.

TE-071 Workshop: Curriculum Evaluation and Selection 1.0 a.h.
For a specific curriculum area, designing and developing criteria for evaluating, revising, selecting, and monitoring the instruction and materials in the specific curriculum area. May be repeated for different areas. Prerequisite: TE-013, or competency in curriculum evaluation and selection.

TE-072 Workshop: Curriculum Development and Implementation 1.0 a.h.
For a specific curriculum area, designing and developing instructional units to develop the materials and activities in the specific curriculum area. May be repeated for different areas. Prerequisite: TE-013, or competency in curriculum development and implementation.

TE-073 Workshop: Teaching Methodology 1.3 a.h.
Focuses on teaching methodologies for developing instructional units, teaching strategies, observations, and strategies of teaching. May be repeated for different areas. One session of Workshop: Curriculum Development and Implementation for specific areas being offered.

TE-075 Creative Drama in the Classroom 2.0 a.h.
A study of creative drama, theatre, and storytelling activities with children with dramatic activities. Develops skills to offer drama experiences and provides a framework for teacher's role in the classroom, emphasis on enriching the child's world, and providing opportunities for creative expression. Emphasis will be placed on the utilization of drama in the classroom, with an emphasis on the utilization of drama in the classroom, with an emphasis on the utilization of drama in the classroom.

TE-076 Play in the Classroom 2.0 a.h.
Designed for primary classroom teachers and those involved in early childhood education. Topics include: play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom, play in the classroom.

TE-078 Language and Learning 2.0 a.h.
Course provides an overview of language development, growth, and skills. Designed for students of psychology, special education, and education, to understand the relationships between language development, growth, and skills. Designed for students of psychology, special education, and education, to understand the relationships between language development, growth, and skills. Designed for students of psychology, special education, and education, to understand the relationships between language development, growth, and skills. Designed for students of psychology, special education, and education, to understand the relationships between language development, growth, and skills. Designed for students of psychology, special education, and education, to understand the relationships between language development, growth, and skills.

TE-078E Supervision of Science in the Elementary School 1.5 a.h.
Objectives, selection, and grade placement of content, classroom behavior, and discipline; student growth and development; instructional planning, enrichment programs, and specialized study and resource materials; extra-curricular activities.

TE-080E Planning for Teachers 2.0 a.h.
Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers. Focuses on the creation of a comprehensive plan for professional growth, including classroom-specific professional development areas with different levels of professional growth for teachers.

TE-094E Curriculum Foundations 2.5 a.h.
Elementary and secondary curriculum development in a curriculum philosophy and the kinds of philosophical, theoretical, and practical questions that arise in the development of curriculum and method. Examines the relationship between curriculum and method, and the nature of the educational experience. Prerequisite: TE-015.

TE-095 Teaching Classroom Teaching Skills 2.0 a.h.

TE-095H Organizing Classroom Teaching Skills 2.0 a.h.

TE-097 Development and Administration of School Child Care Centers 2.0 a.h.
The child as a learner; program assessment, program development, evaluation, administration, and supervision. Presents effective strategies in Child Care/Child Development. Focuses on the development and administration of school child care centers.

TE-098 Supervised Teaching in the Elementary School 2 a.h.
Supervised teaching in elementary schools under the direction of a qualified professional. Prerequisite: APPE, or for the Office of Field Studies, College of Education, Contact: College of Education, Contact: College of Education.

TE-099 Supervised Teaching Elementary School Pro-Fine Arts Phase 2.0 a.h.
Supervised teaching in elementary schools under the direction of a qualified professional. Prerequisite: APPE, or for the Office of Field Studies, College of Education, Contact: College of Education.

TE-100 Laboratory Practice in Elementary School Supervised teaching and observation in specific areas of elementary education. Prerequisite: successful completion of specific areas by identified by sections.

TE-101 Independent Study 1.0 a.h.
Open only to qualified candidates in elementary education. Focuses on the development and administration of school child care centers.

TE-102 Multicultural Concept and Instructional System 2.0 a.h.
In-depth exploration of multicultural practices with students from diverse backgrounds. Focuses on the development and administration of school child care centers.

TE-102B Multilingual Laboratory Practice in Elementary School Practical approach to dual language instruction and bilingual instruction. Focuses on the development and administration of school child care centers.

TE-103S Supervised Teaching Early Childhood Center, Pre-K Phase 2.0 a.h.
Supervised teaching in early childhood education. Prerequisite: successful completion of specific areas by identified by sections.

TE-103T Supervised Teaching Early Childhood Center, Pre-K Phase 2.0 a.h.
Supervised teaching in early childhood education. Prerequisite: successful completion of specific areas by identified by sections.

TE-104S Unterricht für Kinder 2.0 a.h.
Instruction and selection of instructional materials in kindergarten teacher, including methods of instruction, techniques, and aids used in the kindergarten teacher. Prerequisite: successful completion of specific areas by identified by sections.

TE-104T Unterricht für Kinder 2.0 a.h.
Instruction and selection of instructional materials in kindergarten teacher, including methods of instruction, techniques, and aids used in the kindergarten teacher. Prerequisite: successful completion of specific areas by identified by sections.

TE-105S Curriculum Development in Music Education 2.0 a.h.
Curriculum development, instructional materials, and course content in teaching methods and techniques in music education program. Focus on the development and administration of school child care centers.

TE-105T Curriculum Development in Music Education 2.0 a.h.
Curriculum development, instructional materials, and course content in teaching methods and techniques in music education program. Focus on the development and administration of school child care centers.

TE-106S Physical School Curriculum in Physical Education 2.0 a.h.
Treatment of major social, psychological, and biological factors influencing curriculum approach in physical education. Emphasis on the development and administration of school child care centers.

TE-106T Physical School Curriculum in Physical Education 2.0 a.h.
Treatment of major social, psychological, and biological factors influencing curriculum approach in physical education. Emphasis on the development and administration of school child care centers.
TIE-207 Curriculum Development in the Early Childhood and Elementary Education 2.0 s.h.
Introduction to the field of curriculum development and the role of the teacher in the design and implementation of effective instruction for young children. Focus on how to create a learning environment that is developmentally appropriate and responsive to the needs of all learners.

TIE-208 Curriculum Development in Pre-Kindergarten 3.0 s.h.
Focus on the development of appropriate curriculum and instruction for young children in pre-kindergarten settings. Emphasis on creating a safe, nurturing, and stimulating environment that fosters early childhood development.

TIE-209 Cooperative Early Childhood Education 3.0 s.h.
This course focuses on the importance of collaborative learning and the role of the early childhood educator in facilitating the learning process for young children. Topics include classroom management, assessment, and the integration of technology in early childhood education.

TIE-210 Advanced Reading Clinic Techniques 2.0 s.h.
Special instructional procedures for children with severe learning problems in creating meaningful reading experiences. Includes the use of instructional materials, assessment techniques, and reading strategies.

TIE-211 Supervisors of Student Teachers and Auxiliary Personnel 2.0 s.h.
Preparation for the role of supervisor of student teachers. Focus on the development of effective mentoring strategies and the provision of ongoing support and guidance for student teachers.

TIE-212 Individual Instruction in Elementary and Secondary Education 2.0 s.h.
Individualized instruction techniques for students who require additional support in reading, writing, and mathematics. Focus on the use of technology and the development of individualized learning plans.

TIE-213 Design and Organization of Curriculum 2.0 s.h.
Introduction to the principles of curriculum design and the development of effective instructional materials. Focus on the use of technology in the creation of interactive learning experiences.

TIE-214 Secondary Education: The School as a Learning Community 3.0 s.h.
Focus on the role of the school as a community of learners. Emphasis on the development of effective communication and collaboration strategies among teachers and students.

TIE-215 Introduction to Research in Art Education 3.0 s.h.
Methods of inquiry used in research in art education and the design and implementation of research strategies. Focus on the use of technology in the collection and analysis of data.

TIE-216 Supervisors of Student Teachers 3.0 s.h.
Preparation for the role of supervisor of student teachers. Focus on the development of effective mentoring strategies and the provision of ongoing support and guidance for student teachers.

TIE-217 School Improvement and Current Issues 3.0 s.h.
Focus on current issues in education, including the use of technology in the classroom and the role of social media in education. Emphasis on the development of effective communication and collaboration strategies among teachers and students.

TIE-218 Reading Clinic Supervisors 3.0 s.h.
Supervision experience in guiding and supporting teachers in their instruction of reading. Focus on the use of technology in the collection and analysis of data.

TIE-219 Administering and Supervising II 3.0 s.h.
Methods of inquiry used in research in art education and the design and implementation of research strategies. Focus on the use of technology in the collection and analysis of data.

TIE-220 Laboratory Project in Supervision 3.0 s.h.
Individual research projects that offer opportunities in a variety of school settings. Emphasis on the use of technology in the collection and analysis of data.

TIE-221 Practicum in College Teaching 3.0 s.h.
Individual research projects that offer opportunities in a variety of school settings. Emphasis on the use of technology in the collection and analysis of data.

TIE-222 Research Project 3.0 s.h.
Individual research projects that offer opportunities in a variety of school settings. Emphasis on the use of technology in the collection and analysis of data.

TIE-223 Field Service Project 3.0 s.h.
Individual research projects that offer opportunities in a variety of school settings. Emphasis on the use of technology in the collection and analysis of data.

TIE-224 M.A. Thesis in Early Childhood and Elementary Education 3.0 s.h.
Preparation of a comprehensive, research-based thesis that contributes to the field of early childhood and elementary education.

TIE-225 Seminar: Child Art and Art Education 2.0 s.h.
Analysis and evaluation of current research in child art and child development, perceptions, creativity, and an educational developmental philosophy of child art development, and art education in child development.

TIE-226 Research in Art Education 3.0 s.h.
Individual research projects that offer opportunities in a variety of school settings. Emphasis on the use of technology in the collection and analysis of data.

TIE-227 Ph.D. Thesis in Early Childhood and Elementary Education 3.0 s.h.
Preparation of a comprehensive, research-based thesis that contributes to the field of early childhood and elementary education.

Educational Administration
Chair: Walter J. Foley
Professor: George A. Chambers, Walter J. Foley
Professor emeritus: William H. Londe, John K. McRae
Associate professors: Diane D. Anderson, Kristen L. Springer
Assistant professors: Carol A. Bartlett, Larry D. Bartlett
Assistant professor emeritus: John B. Cox
Adjunct assistant professor: Wendell C. Berresmeyer
Degree offered: M.A., Ed.D., Ph.D.

The Division of Educational Administration functions to prepare individuals for leadership positions and other programs leading to the M.A., Ed.D., Ph.D., degrees, and administrative certification.

The primary purpose of the M.A. program is to prepare individuals for assignments as elementary or secondary school principals, central staff members, and for positions within area education agencies and state departments of education.

The E.D.S. program is designed to prepare candidates for administrative appointments in area education agencies, state departments of education, the U.S. Office of Education, and to assist school administrators in updating their administrative skills to the level of superintendent of schools.

The primary purpose of the Ph.D. program is to prepare students for leadership positions at all levels of education through individually designed programs that include course work in related disciplines and research pursuits. Emphasis is placed on the integration of theory and practice in the program.

The Division of Educational Administration offers its programs jointly with other divisions in the College of Education. It also offers joint programs with other colleges in the University.

Certification
To be eligible for recommendation by The University for certification in Iowa as an elementary principal, secondary principal, or superintendent, an individual must:

Hold or be eligible to hold an Iowa Professional Teaching certificate:

Have a minimum of four years of successful teaching experience while holding a valid teaching certificate at the level (elementary/secondary) of the application.

Have earned at least 20 semester hours of graduate credit in a planned program in general school administration, which includes field experience, at The University of Iowa; and

Hold a master's degree (50 graduate semester hours for the superintendent's endorsement).

In addition each certificate has its requirements:

Elementary Principal (Enrollment 11) and Secondary Principal (Enrollment 22): Completion of a planned M.A. program at The University of Iowa, including successful completion of the core courses for all prerequisite certification candidates and the appropriate certification level, and courses from the elected list approved by the adviser to meet minimum semester hour degree requirements. Person already holding an M.A. degree must satisfy all core requirements for the appropriate certification level and must complete a minimum of 20 semester hours in a planned program at The University of Iowa. Administrative certification at a level different from that characterizing prior student preparation and experience should be planned with an adviser.

Superintendent (Enrollment 61): 60 semester hours of graduate work in a planned program in general school administration.

Graduate Programs
Master of Arts
The purpose of this program is to prepare individuals for appointments as elementary or secondary school principals, central staff members, or for positions within area education agencies and state departments of education.

The student may take the program with thesis (30 semester hours minimum) or
without thesis (32 semester hours minimum)

**Course Requirements**

With the aid of an advisor, the student prepares a plan of study including these core requirements:

- All Candidates
  - TD301 Foundations of school Administration 3 s.h.
  - TD256 Computer Applications in Education 2-3 s.h.
  - TD256 Elementary and Secondary Education with Special Needs 3 s.h.
  - TD261 The Principalship 3 s.h.
  - TD258 Legal Aspects of School Personnel 3 s.h.
  - TD350 Supervision of Instruction 2-3 s.h.
  - TE360 Design and Organization of Curriculum 3 s.h.

The student must meet the human relations requirement of the State of Iowa and specialize in elementary, secondary, middle school/junior high, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the advisor to satisfy degree requirements.

**Elementary Level**

**Required**

- TD258 Contemporary Management Strategies for the Elementary Principal 3 s.h.
- TD392 Field Service Project in Educational Administration (elementary) arr.

**Electives**

- TP111 Philosophies of Education 2, 3, 5 s.h.
- TP110 Introduction to Educational Measurement 3 s.h.
- TE252 School Organization Patterns 3 s.h.
- TD257 The Emergent Techniques of Teaching Science in the Elementary School 3 s.h.
- TE257 Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
- TE231 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
- TE234 Seminar: Supervision and Administration 2-3 s.h.
- TP292 Analysis and Appreciation of Curriculum 2-3 s.h.
- TE250 Supervision of Elementary School Programs 3 s.h.
- TE256 Supervision of Elementary School Social Studies 3 s.h.
- TE263 Supervision of Elementary School Mathematics 2-3 s.h.
- TE252 Supervision of Intermediate Grade Reading 3 s.h.
- TE256 Curriculum Development in the Pre-Kindergarten 3 s.h.
- TE258 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

**Middle School/Junior High Level**

**Required**

- TE256 Contemporary Management Strategies for the Middle School/Junior High School Principal 3 s.h.
- TD292 Field Service Project in Educational Administration (middle school/junior high) arr.

**Electives**

- Electives selected with the consent of the advisor from elementary and secondary levels to reflect a balanced program.

**Secondary Level**

**Required**

- TD258 Contemporary Management Strategies for the Secondary Principal 3 s.h.
- TD292 Field Service Project in Educational Administration (secondary) arr.

**Electives**

- TP117 Philosophies of Education 2, 3, 5 s.h.
- TP121 Educational Psychology 3 s.h.
- TP141 Introduction to Statistical Methods 3 s.h.
- 6L105 Collective Bargaining 3 s.h.
- 6L158 Personnel Management 3 s.h.
- 7L266 Curriculum Foundations 2-3 s.h.
- 7L256 Administration of Student with Special Needs 3 s.h.
- TP255 Construction and Use of Evaluation Instruments 3 s.h.
- TD256 School Organization Patterns 3 s.h.
- TC257 Issues and Ethics in Counseling 2-3 s.h.
- TC256 Improving Instruction in the Secondary School 3 s.h.
- TD254 Administration of Educational Programs and Personnel 4 s.h.
- TD255 Financial Management of Local School System 3 s.h.
- TD257 Administrative Leadership Theory 4 s.h.
- TD259 Legal Aspects of School Administration 2-3 s.h.
- TC256 Seminar: Supervision and Administration 2-3 s.h.

**Central Staff Administration**

**Required**

- TP143 Introduction to Statistical Methods 3 s.h.
- TD253 Computer Applications in Education 2-3 s.h.
- TD256 Financial Management of Local School Systems 3 s.h.

**Electives**

- To be selected with the approval of the advisor.

**Thesis**

A student electing the M.A. program with thesis must take TD290 M.A. Thesis in Educational Administration and a final oral examination on the thesis.

**Comprehensive Examinations**

The student takes two three-hour examinations in areas of emphasis selected with the approval of his or her advisor. A student must be registered in the Graduate college at the time of the comprehensive examination.

**Education Specialist**

This program is designed to enable educational personnel to meet original certification requirements or to upgrade their background and skills to prepare them for positions as principals, superintendents, and other administrative and supervisory positions in educational agencies. A student wanting certification plans a program approved by an advisor to meet State of Iowa certification requirements.

**Course Requirements**

- TD291 Administration of Educational Program and Personnel 4 s.h.
- TD294 Policies and Economics of the Governance and Financing of Public Education 4 s.h.
- TD257 Administrative Leadership Theory 4 s.h.
- TD259 Legal Aspects of School Management 2-3 s.h.
- TD395 Educational Specialist Research in Educational Administration arr.

**Program Emphasis**

Students must complete the balance of the minimum required semester hours (notus cognatus and electives) in one of the following areas of emphasis. Courses specifically listed in each area of specialization are the required courses.

**Elementary School Administration**

- TP143 Introduction to Educational Measurement 3 s.h.
- TE252 School Organization Patterns 3 s.h.
- TD234 Seminar: Supervision and Administration 2-3 s.h.
- TE256 Curriculum Development in the Middle School/Junior High School 3 s.h.
TU 304 Seminar: Supervision and Administration 2-3 s.h.
TU 279 Issues and Ethics in Counseling 2 s.h.
TP 156 Introduction to Educational Measurement 3 s.h.
Secondary School Administration
TP 156 Introduction to Educational Measurement 3 s.h.
TU 296 Improving Instruction in the Secondary School 3 s.h.
TU 279 Issues and Ethics in Counseling 2-3 s.h.
General School Administration
TU 285 Collective Bargaining in Education 3 s.h.
TU 292 Planning and Utilization of Educational Facilities 2 s.h.
TU 285 Financial Management of Local School Systems 3 s.h.
TU 375 Educational Administration Practice 3 s.h.
TP 143 Introduction to Statistical Methods 3 s.h.

Cognates
The student must complete a minimum of 6 semester hours that are cognate to educational administration, subject to the advisor’s approval.

Electives
The student chooses electives completing the 60-semester-hour requirement for the Ed.S. degree. In the program for general or central staff administration, the student may choose electives for specialization in such fields as student personnel, business affairs, instruction, library, legal aspects, curriculum, and information systems.

Research
All candidates for the Ed.S. degree must complete a formal research paper (4 semester hours) dealing with a specific problem in school administration or instruction.

Comprehensive Examination
The comprehensive examination for the Ed.S. degree comprises one three-hour examination in educational administration and one two-hour examination in a specialized area other than educational administration. Students must be registered in the Graduate College at the time of the exam. No Ph.D. comprehensive examinations will be held during summer session.

Doctor of Philosophy
The purpose of this program is to prepare students for positions at all levels of school administration, to conduct research in educational administration, and to teach at the college or university level. All prior preparation and experience is carefully analyzed and a sequence of courses determined to best equip individuals for their career objectives. As a general guideline, the student is expected to have a general background in professional education, educational administration, and an area of specialization in at least one area of educational administration upon completion of the program.

Commonly selected specialization areas are: general administration, elementary school administration, secondary school administration, educational systems analysis and research, school finance, curriculum, legal aspects, theory, and school personnel. Students specializing in administration must complete a five-semester-hour cognate course outside the College of Education. Proficiency in two research tool areas must be demonstrated.

Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, specialization in at least one aspect of educational administration, cognate study, research, research competencies, and dissertation research.

Core Courses
Core courses are designed to develop research, program and personnel, politics and economics of the governance and financing of public education, administrative leadership theory, and research methodology and quantitative analysis.

Comprehensive Examinations
Doctoral students must satisfactorily complete an extensive in-house comprehensive examination. The five common areas of educational administration and a three-hour examination based on the student’s areas of specialization that is approved by the student’s advisor and the dissertation chair. Students must have completed the doctoral core courses and/or be enrolled to complete the research component that is set for the comprehensive examination.

Students must be registered in the Graduate College at the time of the exam. No Ph.D. comprehensive examinations will be held during summer session.

Courses
TU 203 Principles of School Administration 3 s.h.
TU 304 Seminar: Supervision and Administration 3 s.h.
TU 279 Issues and Ethics in Counseling 2 s.h.
TP 156 Introduction to Educational Measurement 3 s.h.
TU 296 Improving Instruction in the Secondary School 3 s.h.
TU 279 Issues and Ethics in Counseling 2-3 s.h.

Admission
Candidates are selected on the basis of successful completion through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) applicants, and other evidence of academic ability and professional promise.

TU 285 Collective Bargaining in Education 2 s.h.
TU 285 Collective Bargaining in Education 2 s.h.
TU 292 Planning and Utilization of Educational Facilities 2 s.h.
TU 285 Financial Management of Local School Systems 3 s.h.
TU 375 Educational Administration Practice 3 s.h.
TP 143 Introduction to Statistical Methods 3 s.h.

Research
Research Prospectus
The student must write a formal dissertation prospectus and submit it to the doctoral committee for approval. The student and advisor determine the time for completing the prospectus. Final evaluation of the prospectus is made in a meeting of the thesis committee. Dissertation prospectus meetings will be held during summer sessions.

Completion of the Dissertation and Final Examination
The student must accumulate from six to ten semester hours of dissertation research credit. The doctoral program culminates with final oral defense of the dissertation. The student usually takes the examination within a month of his or her anticipated time of graduation. The student must be registered at the University during the semester in which he or she graduates.
Foundations, Postsecondary and Continuing Education

Doctor of Philosophy

The Ph.D. program requires a minimum of 90 semester hours. Students are required to take a minimum of 24 semester hours in social foundations, which must include at least 12 semester hours in the major area of specialization and a minimum of 6 semester hours from each of two additional areas. In addition, students are required to take at least 12 semester hours in related courses in the College of Education. None of these courses must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, and post-secondary and continuing education.

Approximately one-third to one-half (30 to 45 semester hours) of each student's program is devoted to coursework. Study is divided into at least one program in the University, such as history, philosophy, political science or sociology. These sequences are individually planned by the student in consultation with his or her advisor and submitted to the appropriate department for approval. Two research tools are required and are selected from the following alternatives: (a) with the individual candidate's research interests and program: and (b) courses in the graduate level language sequence: philosophy of science and philosophy of social science; methodology; foreign language(s), proficiency exam. In addition, all students are required to successfully complete TF 440 Seminar: alternative Research Strategies or TF 445 Research in Higher Education. Dissertation research is normally taken for 12 to 15 semester hours of credit.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex net of phenomena. The academic programs in the division encompass that complexity. Degrees are offered at all levels and there is emphasis on both research and practice. Preparation for both research and practice is available. The teaching, research, and service activities of the faculty, the work of the graduates of the several degree programs, illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Undergraduate Major in Health Occupations Education

The health occupations education major has been designed to prepare teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and General Education Requirements of the College of Liberal Arts, students complete courses in professional education and the health occupations education specialty field and/or supporting areas. Students applying to this program must hold current appropriate certification, licensure, or registry appropriate to the area of health occupations education in which they wish to teach, e.g., dental assisting, medical office assisting, or radiology. The health occupations education major is planned upon this base, and provides work in professional education and the liberal studies components to students who wish to acquire a baccalaureate degree.
Applicants to this program must satisfy criteria for admission to the Teacher Education Program (TEP) of the College of Education.

Program requirements:

Professional Education Component

7P/75 Educational Psychology and Measurement 3 s.h.
7W/31 Auditory Equipment for Instruction 1 s.h.
7W/32 Introduction to Microcomputing for Teachers 1 s.h.
7W/112 Teaching Methods 3 s.h.
7H/117 Foundations of Vocational Education 2 s.h.
7H/150 Seminar: Health Occupations Education 1 s.h.
7H/191 Community College Teaching Internship 12 s.h.
or
7S/191 Observation and Laboratory Practice for the Secondary School 12 s.h.
7H/192 Curriculum Development Application in Community College and Health Careers 3 s.h.
Appropriate course in social foundations 3-3 s.h.
Additional specialty coursework in health occupations education 10 s.h.

Course work in the health occupations education specialty and supportive field should be planned carefully in consultation with the advisor.

Students may take workshops or courses offered by specific health colleges or choose electives such as development of audio visual aids or computer aids in education in keeping with their educational goals. In addition, students must meet certification requirements stipulated by the American government or U.S. history course and a human relations course.

Master of Arts Without Thesis

The purpose of the M.A. program in higher education is to prepare individuals for entry- and mid-level administrative, curricular and instruction, or continuing education positions in two- and four-year institutions, and appropriate for positions such as assistant dean, business manager, development officer, assistant to the president, director, in-service director, and division or program chair in selected areas.

Admission

Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, the GRE scores, and three letters of recommendation are required for consideration. A candidate is recommended.

Requirements

The M.A. program requires a minimum of 32 semester hours.

Two three-hour examinations, one in higher education and one in the student's area of concentration and specialization;

Three-hour comprehensive examination:

An examination to cover the field of higher education is given.

An examination in one of the four concentrations within higher education, unless reflecting an area of specialization within the concentration, followed by an oral examination.

Major in Higher Education with Emphasis in College Teaching

Requirements for the Ed.S. major in higher education with emphasis in college teaching are:

At least 18 semester hours in professional education and related fields appropriate for college teaching including a structured internship.

7H/270 Intern Seminar 1-3 s.h.
7H/370 College Teaching Internship 1-9 s.h.
7H/152 Post-High School Staff Development Workshop 1-2 s.h.
7W/31 Auditory Equipment for Instruction 1 s.h.
7H/151 Educational Psychology 3 s.h.

At least 28 semester hours in the area of teaching specialization.

Ten semester hours of electives to be approved by the candidate's advisor.

Research, conducted under registration in 7H/395 Educational Specialist Research in Higher Education for 1 semester hours.

Comprehensive Examination:

An examination of the nature of postsecondary institutions and student characteristics, the professional responsibilities of a faculty member, and the candidate's ability to organize the subject matter into select appropriate teaching strategies;

An examination in the candidate's teaching field, written and administered by faculty in that field, followed by oral examination.

Related Field

Students majoring in another field who wish to complete a related field in higher education should consult with the higher education advisor in their studies. Plans of study will be developed individually.

Teaching Internship

Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that community college; field supervision from The University of Iowa.

Participants are entitled to use as possible in the academic life of the host community.
college, and usually gather data for their Ed.S. research project during the internship. Participants must be willing to travel to a community college and reside there for the one-semester program. Some internships are accommodated at nearby community colleges, but preference will be given to those willing to travel for that experience.

Doctor of Philosophy

The Ph.D. program continues to attract persons who are likely to serve as administrators, specialists, researchers, and teachers in postsecondary institutions or related public or private agencies. The program offers four areas of concentration: general administration, curriculum and instruction (academic administration), community college, and continuing education (adult education). The program requires a minimum of 90 semester hours beyond the bachelor's degree. The candidate chooses one area of concentration and must earn 16 to 24 semester hours of credit in that area. Ordinarily the candidate chooses a related field of 9 to 12 semester hours or a minor (approximately 30 semester hours), which may be met by appropriate previous course work at the M.A. level that complements the area of concentration. The dissertation research (12 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor and related fields, and dissertation research—constitute a major part of the typical doctoral program, and give the student the opportunity to specialize in one or more areas of interest. While the major program places heavy emphasis on administration at both the theoretical and applied levels, the student is expected to take course work outside the division, using the flexibility of the program to develop skills in such areas as organizational analysis and the design and administration of personnel systems.

Comprehensive examinations for the doctorate cover the general area of higher education administration and include areas of the concentration, minor and related field, and dissertation research. Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, the GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended and may be required.

Iowa Community College Certification

To qualify for a professional certificate with authorization to teach in an arts and sciences field of an area community college, the student must hold a master's degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college. Preparation must include 6 semester hours of professional preparation appropriate for college teaching. Two semester hours of American history or government are required for certification in Iowa. The following courses fulfill the requirement:

- TH370 The Community College 2-3 h.
- TH370 Intern Seminar 3 h.
- TH375 Post-High School Staff Development Workshop 1-2 h.
- TH375 Teaching of Adults 3 h.
- TH370 College Teaching Internship 3-6 h.

In addition, appurtenant for certification must have completed an approved human resources course for 3 semester hours of credit.

A master's degree in the student's teaching area is required for certification in arts and science areas.

Facilities

A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

Social Foundations and Comparative Education

- TH370 Analysis For Decision Making 3 h.
- TH370 Practical principles and methods of analysis drawn from policy analysis and decision science. Application to individual, organizational, and public policy decisions and issues. Completion of a written report of practical significance.

- TH401 Education, Politics, and Culture of Northern Southeast Asia 3 h.
- TH401 Exploring the different approaches to educational development and the rights to cultural survival relating in a few selected indigenous and traditional societies in the world.

- TH402 African Education 3 h.
- TH402 Explaining the role of the African education systems in the global context of contemporary education.

- TH404 Education in the Third World 3 h.
- TH404 Educational implications of various development issues, including the role of the world, industrialization, and economic development. In addition to an examination of educational development currently facing Third World governments.

- TH406 History of Eastern Education 3 h.
- TH406 Historical perspectives of education in China, Japan, and India, explored with reference to contemporary educational issues in these countries.

- TH407 History of Western Education 3 h.
- TH407 Historical perspectives of education in Europe and the United States, explored with reference to contemporary educational issues in these countries.

- TH407 History of Western Education 3 h.
- TH407 Historical perspectives of education in Europe and the United States, explored with reference to contemporary educational issues in these countries.

- TH407 History of Western Education 3 h.
- TH407 Historical perspectives of education in Europe and the United States, explored with reference to contemporary educational issues in these countries.
70:221 Education and Public Policy  
Sears at 7:15
70:250 Topics in Social Foundations of Education  
Sears for Semester study of core problems, issues, or work field. May be repeated for credit.
70:270 Development Policy and Planning in Third World Countries  
Census, educational, and international policies of problems associated with urbanization and development in the developing countries. Same as 40:273, 40:275, 40:277, 40:279, 40:281.
70:290 Individual Internships in Social Foundations of Education  
Prerequisites: consent of instructor.
70:294 Practicum in Social Foundations of Education  
Designed for pre-service students to acquire skills and administrative skills in elementary education. Prerequisite: consent of instructor.
70:296 American Contributions to Educational Philosophy  
American philosophy and its influence on American educational practice.
70:300 Education in China  
Focus on the educational development in modern China from a historical perspective. Analysis of key philosophers and policies. Same as 36:299.
70:320 Educational Planning  
Sears at 7:15
70:335 Seminar: History and Philosophy of American Higher Education  
Organizational structure and related to development of society. United States, and educational philosophy of the United States. Same as 36:300.
70:336 Seminar: Value Problems in the American University  
Prerequisites: consent of instructor.
70:350 Community Development: Application to Community College Development  
Prerequisites: completion of core requirement in education and planning. Same as 45:350.
70:370 Seminar: Health Occupations Education  
Current trends and topics. Subject of health occupations, problems, current issues, and student leadership in student organizations or topics for research. May be repeated for credit.
70:371 Community College Teaching Internship  
Full academic term of supervised, on-the-job teaching at a community college. Preparation for the integration of instruction and content in teaching social studies. Prerequisite: consent of instructor.
70:430 Undergraduate Research  
Prerequisites: courses in social science. Consent of instructor.
70:450 B.S. Thesis  
Prerequisite: consent of instructor.
70:490 Undergraduate Research  
Prerequisites: consent of instructor.
70:500 International Education  
Study and analysis of contemporary international issues and policies. Same as 45:500.
70:510 Instructional Design in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:511 Principles of Instruction  
Prerequisite: consent of instructor.
70:512 Teaching of Adults  
Adult learning theories and considerations of perspectives in teaching techniques for adults.
70:513 Foundations of Vocational Education: Models of the Teaching-Learning Process  
Study of educational rehabilitation programs with emphasis on the professional development of teachers. Prerequisites: consent of instructor.
70:514 Iowa Community College Workshops  
Prerequisite: consent of instructor.
70:515 New High School Staff Development Workshops  
Prerequisites: consent of instructor.
70:516 Seminar: Higher Education: Customization of Professional Development  
Prerequisites: consent of instructor.
70:517 Seminar: Community College Teaching Internship  
Full academic term of supervised, on-the-job teaching at a community college. Preparation for the integration of instruction and content in teaching social studies. Prerequisite: consent of instructor.
70:518 Curriculum Development: Application to Community College and Health Careers Education  
Prerequisites: completion of core requirement in education and planning. Same as 45:350.
70:519 Topics in Higher Education  
Prerequisite: consent of instructor. Enrollment restricted to graduate students.
70:520 Organizational Analysis of American Higher Education  
Prerequisites: consent of instructor. Same as 45:520.
70:522 Introduction to Planning, Policy Analysis, and Evaluation  
Prerequisites: consent of instructor. Same as 45:522.
70:560 Administration of Technical Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:561 Development of Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:570 Seminar: Problem and Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:572 Seminar: Special Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:573 Seminar: Critical Thinking in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:574 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:575 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:576 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:577 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:578 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:579 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:580 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
70:581 Seminar: Critical Issues in Continuing Education  
Prerequisites: consent of instructor. Enrollment restricted to graduate students.
Psychological and Quantitative Foundations

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor selected by the student will aid in choosing courses totaling 18 or more semester hours, of which 12 semester hours must be in 300-level courses. This minor does not lead to certification as a public school teacher.

One of the General Education Requirements for graduation from the College of Liberal Arts is successful completion of a course designed to develop skills in quantitative or formal reasoning (see the "College of Liberal Arts" and the Catalog). TP-25 Elementary Statistics and Inference may be used to satisfy this requirement.

Graduate Programs

Master of Arts

Educational Psychology

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, cognition/learning, motivation, socialization/personality, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds. Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of course work. The degree with thesis requires a minimum of 38 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require TP-143 introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program must take the M.A. degree with thesis.

Students plan the remainder of the program in consultation with their advisor, choosing courses from the following four areas: human development, cognition/learning, motivation, and socialization/personality. Students must take at least one course in each of these areas. The faculty encourages degree candidates to enroll at least two courses outside the division.

The program consists of six hours of comprehensive examinations, consisting of either three two-hour or three three-hour exams. The three-hour exam calls for a minimum of two courses in each area tested, but three courses are recommended. The two-hour exam calls for a minimum of two courses in each area tested. The comprehensive exam is planned jointly by the student and advisor and must be approved by the department.

The admission requirements are the same as those established by the Graduate College.

Undergraduate Course Work

The division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor selected by the student will aid in choosing courses totaling 18 or more semester hours, of which 12 semester hours must be in 300-level courses. This minor does not lead to certification as a public school teacher.

One of the General Education Requirements for graduation from the College of Liberal Arts is successful completion of a course designed to develop skills in quantitative or formal reasoning (see the "College of Liberal Arts" and the Catalog). TP-25 Elementary Statistics and Inference may be used to satisfy this requirement.

Graduate Programs

Master of Arts

Educational Psychology

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, cognition/learning, motivation, socialization/personality, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds. Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of course work. The degree with thesis requires a minimum of 38 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require TP-143 introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program must take the M.A. degree with thesis.

Students plan the remainder of the program in consultation with their advisor, choosing courses from the following four areas: human development, cognition/learning, motivation, and socialization/personality. Students must take at least one course in each of these areas. The faculty encourages degree candidates to enroll at least two courses outside the division.

The program consists of six hours of comprehensive examinations, consisting of either three two-hour or three three-hour exams. The three-hour exam calls for a minimum of two courses in each area tested, but three courses are recommended. The two-hour exam calls for a minimum of two courses in each area tested. The comprehensive exam is planned jointly by the student and advisor and must be approved by the department.

The admission requirements are the same as those established by the Graduate College.

Teaching experience is desirable but not required. The faculty reviews applications as they are received.

Educational Measurement and Statistics

A Master of Arts degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Such positions occur in research centers, testing services, and state educational agencies. The program is also appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 28 semester hours of course work plus two to four semester hours of thesis credit). All students must complete a core of courses totaling 18 to 20 semester hours. Included in this core are a graduate-level survey course in educational psychology, elementary and intermediate courses in classical statistical methods, an introduction to Bayesian statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments.

The elective credits, totaling 10 to 12 semester hours, must include at least one course in elementary, secondary, or postsecondary education. The remaining electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer science, and data processing, mathematics, and counseling.

The final comprehensive examinations typically include two or three examinations in educational measurement and in applied statistics. The candidate must present the M.A. committee, the 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.

Grade-point-average requirements for admission to the program are the same as those established by the Graduate College.

Normally, if the candidate scores the quantitative, verbal, or analytical section of the Graduate Record Examination (GRE) General Test is less than 500, the applicant will not be admitted. However, if there is offsetting evidence of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.
Reading Disability

The Master of Arts program provides training in the diagnosis of reading disabilities and in the prescriptive teaching of reading. Graduates of the nonthesis program qualify for certification as reading clinicians. They typically return to classroom teaching or take positions as reading clinicians, supplementary reading teachers, or reading consultants. Graduates of the thesis program typically expect to enter doctoral programs in the field of reading.

The nonthesis program requires a minimum of 30 semester hours including the following core courses:

- TP170 Introduction to Psychology of Reading 3 s.h.
- TP173 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 4 s.h.
- TP180 Introduction to Educational Measurement 3 s.h.
- TU263 Individual Intelligence Testing 3 s.h.

Students must also complete at least 4 semester hours of practicum courses chosen with the advisor's approval from the following:

- TE171 Reading Clinic Teaching Techniques 2-3 s.h.
- TE172 Reading Clinic Teaching Practicum 2-3 s.h.
- TE271 Advanced Reading Clinic Techniques 2-3 s.h.
- TE272 Advanced Reading Practicum 2-3 s.h.
- TE265 Reading Clinic Supervision arr.
- TP270 Psycholinguistic Research in Reading Laboratory 3 s.h.

All students must take a minimum of 14 semester hours in elective courses, chosen with the advisor's approval from the fields of psychology and pedagogy, educational psychology, special education, and elementary or secondary education.

The thesis program requires a minimum of 30 semester hours including the following core courses or equivalents:

- TP143 Introduction to Statistical Methods 3 s.h.
- TP143 Intermediate Statistical Methods 4 s.h.
- TP270 Advanced Psychology of Reading 3 s.h.
- TP273 Reading Clinic Diagnostic Practicum 2-3 s.h.
- TP300 Introduction to Logistics 3 s.h.
- TP301 M.A. Thesis in Educational Psychology, Measurement, or Statistics 24 s.h.

Elective courses are chosen from the same fields enumerated for the nonthesis program.

For both the thesis and nonthesis programs, the comprehensive examinations typically include a three-hour examination in reading disability and two 90-minute examinations in related fields. With the advisor's approval, the nonthesis student may substitute a comprehensive project for one or more of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. When the applicant's total score on the verbal and quantitative parts of the Graduate Record Examination (GRE) General Test is below 1000, and no other evidence of superior ability is available, the applicant will be rejected or admitted only on a conditional basis. Applicants must have two years of approved teaching experience. The faculty reviews applications as they are received.

Instructional Design and Technology

The Master of Arts in Instructional Design and Technology is a 35 semester-hour program designed to provide basic knowledge and skills required to work in settings including schools, business and industry, hospitals, government, and private consulting agencies. It may be taken either with or without a thesis.

Regular admission requires a minimum grade-point average of 2.5 in all previous course work. Students with a grade-point average of less than 2.5 may be admitted conditionally. Regardless of admission status, all students are expected to attain a grade-point average of at least 3.0 on the first 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:

- 7W103 Selection and Use of Media for Instruction
- 7W105 Design and Production of Media for Instruction
- 7P107 Psychological Bases of Instructional Design
- 7W120 Introduction to Instructional Design and Technology
- 7P150 Introduction to Educational Measurement
- 7W220 Advanced Instructional Design and Technology
- 7W222 Instructional Strategies

If the degree is done with thesis the student is also required to take 7P143 Introduction to Statistical Methods or 7W261 Research Methods in Instructional Design and Technology. In addition, all student must complete 9 semester hours of prescribed course work in one of the following areas:

- Classroom instruction
- Computer applications
- Health sciences education
- Instructional development

Media center administration
Media production
School media (Endorsement 39)
Training and human resource development
Visual studies

If a student has not had previous experience in instructional design, he or she will complete a design tutorial, and all students are required to do a final project.

Completion of the program also requires a six-hour set of final comprehensive examinations. These may be divided into either two- or three-hour parts distributed as follows:

- General instructional design
- Area of emphasis
- Other

Education Specialist in Instructional Design and Technology

The Education Specialist in Instructional Design and Technology is a 60 semester-hour program designed to provide specialized training beyond that provided by the M.A. program. The Ed.S. is ordinarily considered to be a terminal degree.

Admission to the Ed.S. program is the same as to the M.A. except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admissions Office. The letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

The following course work or approved equivalents is required for the degree:

- M.A. core, without statistics, plus:
- 7P143 Introduction to Statistical Methods
- 7W261 Research Methods in Instructional Design and Technology
- 7W289 Survey of Research in Instructional Design and Technology

Every student must also complete 15 semester hours of prescribed course work in one of the following areas:

- Classroom instruction
- Computer applications
- Health sciences education
- Instructional development
- Media center administration
Education/ Psychological and Quantitative Foundations

Media production
School media
Training and human resource development
Visual studies
In addition, all students must complete six semester hours in core area outside the College of Education.
The Ed.S. also requires a final Ed.S. project, at least two of the three essays must be written on the program, interests, and career plans of the student involved.
Comprehensives are the same as those for the M.A.

Doctor of Philosophy

Educational Psychology
This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practice. Such careers include: professorships at the university and college level, and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in the area of reading disabilities prepares students for careers as reading consultants, directors of reading clinics, and professors who train diagnostic and prescriptive reading specialists.
The program requires a minimum of 72 semester hours beyond the bachelor’s degree and encompasses four substantive areas—human development, cognition/learning, motivation, and social psychology. Students must have at least five courses in cognition/learning, two of which must be at the 200-level, and core 200-level courses in at least two of the four substantive areas. A minimum concentration in human development, motivation, and social psychology is required. In addition, the student must demonstrate substantial competence in at least one of these substantive areas. A minimum demonstration of competence requires the successful completion of a three-hour comprehensive examination given on no less than 5 semester hours at the 200 level. Additional requirements include the following:
- 250 Research Methodology: a minimum of 5 semester hours of 200-level courses in statistics and one graduate-level course in measurement; and
- 10 semester hours of PhD thesis credit.
Alterations in these requirements for an individual student can be made with the approval of a three-member committee comprised of faculty members in the educational psychology program. Students are encouraged to take course work outside their area of interest. Candidates who took the M.A. degree without thesis must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty. The candidate’s program is planned jointly by the student and the advisor.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are terminated from the program.
After candidates have completed the major portion of their course work, they must write comprehensive examinations. Typically, these examinations consist of a total of nine hours of written examinations in two or more areas. One of these areas must be chosen from the following: human development, cognition/learning, motivation, or social psychology. With the approval of the examining committee, the candidate may undertake a project in lieu of one of these three-hour examinations.
An applicant for admission to the program must hold an M.A. degree from or be an M.A. candidate in good standing at an accredited institution. Completion of the M.A. program must occur before the student can take the PhD comprehensive exams. The graduate grade-point average requirement for admission is the same as that established by the Graduate College. Normally, if the applicant’s score on the verbal and quantitative portions of the Graduate Record Exam (GRE) Content Test total 1000 or more, he or she will not be accepted. However, the candidate may be admitted conditionally on the basis of other evidence such as high grade-point average in graduate prerequisite preparation, and highly supportive recommendations. Applications are reviewed as received.

Counseling Psychology
The counseling psychology program at The University of Iowa is a doctoral program whose goal is to prepare students for professional practice in the field of counseling psychology. The program includes a minimum of 105 semester hours at the 200 level, courses in statistics and one graduate-level course in measurement; and 30 semester hours of PhD thesis credit. Students are encouraged to take course work outside their area of interest. Candidates who took the M.A. degree without thesis must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty. The candidate’s program is planned jointly by the student and the advisor.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are terminated from the program.
After candidates have completed the major portion of their course work, they must write comprehensive examinations. Typically, these examinations consist of a total of nine hours of written examinations in two or more areas. One of these areas must be chosen from the following: human development, cognition/learning, motivation, or social psychology. With the approval of the examining committee, the candidate may undertake a project in lieu of one of these three-hour examinations.
An applicant for admission to the program must hold an M.A. degree from or be an M.A. candidate in good standing at an accredited institution. Completion of the M.A. program must occur before the student can take the PhD comprehensive exams. The graduate grade-point average requirement for admission is the same as that established by the Graduate College. Normally, if the applicant’s score on the verbal and quantitative portions of the Graduate Record Exam (GRE) Content Test total 1000 or more, he or she will not be accepted. However, the candidate may be admitted conditionally on the basis of other evidence such as high grade-point average in graduate prerequisite preparation, and highly supportive recommendations. Applications are reviewed as received.

Educational Measurement and/or Statistics
The purpose of this doctoral program is to prepare students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions generally occur in colleges and universities, state departments of education, large public and private school systems, testing agencies and research centers. Every student must complete the following core courses or their equivalents:
- 711 Educational Psychology 3.0
- 773 Intermediate Statistics 3.0
- 774 Bayesian Statistics I 3.0
- 775 Educational Research Methodology 3.0
- 776-255 Construction and Use of Evaluation Instruments 3.0
- 777-251 Educational Measurement and Evaluation 3.0
- 773-258 Theory and Technique in Educational Measurement 3.0
- 774-241 Correlation and Regression 3.0
- 774-253 Linear Statistical Models 3.0
- 774-255 Program Evaluation 3.0

The curricula also suggest additional course work in areas appropriate to the student’s interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology. Students who concentrate in the area of statistics, with the intention of teaching at the college level, are required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer programming techniques and processing equipment.

Candidates interested in the program without completing an M.A. thesis must complete a substitute project approved by three members of the division faculty. The project must be completed before the writing of the PhD comprehensive
examinations. A minimum of 90 semester hours is required for the degree, including 12 or more semester hours of thesis credit. The record of every student admitted to the program is reviewed after accumulation of approximately 18 semester hours of course work. The division faculty will consider course grades, evidence of critical and analytical skills, development since admission to the program, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of the course work, candidates must write comprehensive examinations. Typically, these consist of at least three three-hour written examinations over the fields of applied statistics, educational measurement, and educational psychology or an approved substitute area. A qualitative area will generally be one in which the candidate has at least 9 semester hours of course work. If any of the written examinations, the student's committee may assign a project involving analytical, evaluative, or research creativity. The written examinations are followed by oral examination in which the committee members may seek further evidence of the candidate's command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Applicants for admission to the program must be graduates of accredited institutions. The grade-point average requirement is the same as that required by the Graduate College: If an applicant's scores on the verbal, quantitative, or analytical sections of the Graduate Record Examination (GRE), General Test, are less than 500 and there is no offsetting evidence of superior ability, the applicant will be evaluated by the faculty who expect to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency that must be made up during the first year of study. At least 6 hours of post-baccalaureate coursework in research, teaching, or a related field is highly desirable. The faculty review applications as they are received.

Educational Psychology with Concentration in Reading Disability

This doctoral program prepares graduates for careers as college teachers, as directors of remedial reading programs, and as supervisors of remedial reading programs in larger school systems.

The course requirements are essentially the same as those for the doctoral program in educational psychology. The elective courses, however, will include those pertinent to the area of reading and relevant courses offered by the divisions of special education and elementary education, and secondary education, and the departments of speech pathology and audiology, linguistics, and psychology. One of the comprehensive examinations must be in the area of reading disability. The admission requirements are the same as those for the Ph.D. program in educational psychology.

Instructional Design and Technology

The Ph.D. in instructional design and technology is a 50-semester-hour program designed to provide a broad background for students interested in teaching, research, and leadership positions in the field. There is a relatively heavy emphasis on helping students acquire the knowledge and skills necessary to expand understanding of teaching and instruction and to integrate those factors that influence them.

The admission requirements are the same as for the Ed.S. degree except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ph.D. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admission Office. The letter should describe the applicant's interest in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information that may be helpful in the admissions process.

It is recommended that applicants for the Ph.D. degree arrange a personal interview with program faculty members after submitting admission forms. All students in the Ph.D. program must complete the following course work or approved equivalent:

M.A. core without statistics, plus:

1. Elective: Introduction to Statistical Methods, 3 credits
2. Selected Applications of Statistical Methods, 3 credits
3. Research Methods in Instructional Design and Technology, 3 credits
4. Six semester hours of research-related course work.

In addition, the program requires completion of 18 semester hours in one of the following areas:

Computer applications
Health and fitness education
Instructional development
Training and human resource development
Visual studies

All students are also required to complete 9 semester hours in one area outside of the College of Education.

Before writing comprehensive examinations each student must submit a formal paper that reflects his or her ability to organize and write about a topic at the level that will be expected for the dissertation. This paper must be submitted and approved by three members of the faculty in the instructional design and technology program.

All students must successfully pass a nine-hour test or oral comprehensive examinations. These examinations are divided into three-, four-, five-hour segments distributed as follows:

- General instructional design 6-8 hours
- Area of specialization 3 hours
- Others 0-3 hours

Financial Aid

The division normally employs a number of graduate students as teaching, research, and production assistants. These are typically half-time academic year appointments, and holdouts are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chairman of the division.

Other types of graduate assistantships are supplied by the Iowa Testing Programs. Duties are varied, including such responsibilities as test development, test norming, and counseling with teachers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs that are not specific to the Iowa Testing Program but are directed to the program directors.

Courses

Educational Psychology, Measurement, and Statistics

1103 Elementary statistics (3 hours)

1106 Graphical techniques for presenting data, description of statistical distributions, graphs of statistical data, use of computer facilities, regression, multiple correlation, and prediction. Prerequisite: Grade of "B" or above in 1106. Approved as 2610.

1111 Educational Psychology and Measurement (3 hours)


1196 Child Development (3 hours)

Developmental changes in family behavior and environment, age differences in intelligence, learning and motor development, and children's response to instruction.

1207 Psychological Bases of Instruction and Practice (3 hours)

1226 Substitutes of the School Age Child (3 hours)

Psychological factors which influence student development with particular emphasis on those which are most relevant to school settings.

1232 Introduction to Human Behavior (3 hours)

Behavioral analysis of psychological processes and philosophical explanations. Discussion of practical implications of research findings and relationships between instruction, learning, and performance.
and implementations, techniques, documentation, utilization, and interoperability. Prerequisites: PTE 315.

792.236 Advanced Instructional Design and Technology 3 a.h.
Advanced study of the instructional design process with heavy emphasis on current theoretical issues. Prerequisites: PTE 315 and 212.

792.237 Instructional Strategies 3 a.h.
Review of the literature on instructional strategies, including large and small group activities. PTE 221 has an emphasis on issues related to design strategies, and evaluation. Prerequisites: PTE 212 or consent of instructor.

792.238 Computer-Based Instructional Systems 2 a.h.
Study of the design and development of computer-based software for delivery of instruction, diagnosis, tutoring, and assessment. PTE 221 has an emphasis on large group activities, data collection and management, test construction, and evaluation. Prerequisites: PTE 212 and 237.

792.239 Advanced Topics in Computer Science 1-6 a.h.
Advanced approach to current research and development activities in computer-based instruction. Prerequisite: Permission of instructor.

792.261 Graphic Communications 3 a.h.
Theory and practice for preparing educational and instructional graphics, including use of graphic tools and materials, message design, letter, lining, spacing, shading, color, and digital drawing. Prerequisites: PTE 212 and 237 plus one course in instructional design.

792.409 Advanced Computer Graphics 3 a.h.
Incorporates techniques such as color and tonal shading, hidden line removal, animation, programming utility is assumed. Prerequisites: PTE 218 or consent of instructor.

792.466 Administration of Educational Media 3 a.h.
Principles of organizational and personnel management as they apply to affecting the media programs. Prerequisites: PTE 315 and 212 or equivalent.

792.471 Leadership and Management in Health Education 3 a.h.
Examination of how organizations and group dynamics impact on the development of programs in the health sciences. Emphasis on technical and political aspects of program development. Prerequisite: PTE 212.

792.611 Research Methods in Instructional Design and Technology 3 a.h.
Research procedures, experimental design considerations, and statistical analysis skills. The course includes a research project. Prerequisites: PTE 212 or equivalent, PTE 218, 237, and 410, and consent of instructor.

792.612 Facilitating Learning in Health Science 3 a.h.
Overview of educational and clinical teaching models and technologies for use in the development of a comprehensive health science curriculum. Same as MTH 212.

792.617 Design Theory and Practice 3 a.h.
Analysis of educational and instructional design models, including educational technology, learning, and communication. Prerequisites: PTE 212, same as EDS 210.

792.700 Survey of Research in Instructional Design and Technology 3 a.h.
Survey of research in the instructional sciences, communications technology, and message design as related to instruction.

792.799 Special Topics in Health Sciences Education 1 a.h.
Study of special topics of concern to individual health science educators.

792.830 Independent Study Instructional Design for Neophytes 1 a.h.
Opportunity to investigate some of specific concerns to the students. Prerequisites: consent of instructor.

792.370 Practice in Instructional Design and Technology 3 a.h.
Supervised experience in applied writing.

792.379 Internship in Instructional Design and Technology 1-3 a.h.
Supervised administrative and field experience in a selected area.

Experience in public schools, social agencies, higher education, or industry. Prerequisites: consent of instructor.

792.402 Internship Seminar in Instructional Design and Technology 1 a.h.
Opportunities of current issues and trends. May be repeated.

792.403 Seminar: Human Learning, Thinking, and Communication 3 a.h.
Study of current issues and trends of human learning, thinking, and communication from applied and theoretical perspectives. Emphasis on the organization and presentation of problem/essays/analysis approaches and in its value was applied to significant problems.

792.497 Topical Seminar in Instructional Design and Technology 1-6 a.h.
May be repeated. Same as EDS 210.

792.510 A.S. Project in Instructional Design and Technology 1-6 a.h.
Individual project arranged for the A.S.

792.520 M.A. Thesis in Instructional Design and Technology 3 a.h.
Prerequisite: consent of instructor.

792.526 E.D. Project in Instructional Design and Technology 1-6 a.h.
Prerequisite: consent of instructor.

792.535 Ph.D. Thesis in Instructional Design and Technology 1-6 a.h.
Prerequisite: consent of instructor.

Secondary Education
Chavin Marlin J, Dweck
Professor: Robert M. Flach, Steven K. Hodges, Vivienne N. Lohrino, Dorothy McDonald, John E. Pezrick, Harold L. Schoen, Robert E. Tager, Marlin Dweck

Professor: G. Robert Carnil, John H. Barlow, James J. Lefrak, L.J. McAleer, Hugh F. Kersten


Assistant professors: Marlin J. Dweck

Associate professor: John E. Dweck

Assistant professor: Gladys W. Elaine, Susan Florence, Linda L. Johnson, James D. Mariscal, Kenneth Phillips

Assistant professor: Thomas P. McCall

Assistant professors: Brian M. Neff, Omar Meier, Morgan Martin

Instruction: Richard P. Jeng


Teacher Certification Program Requirements
Undergraduate students seeking secondary school certification are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies degrees described in the "College of Liberal Arts" sections of the General Catalog. Undergraduate students may be admitted to a program leading to teacher certification as "certification only" candidates in the Graduate College and are subject to all policies, rules, and regulations of that college.

Certification requires a major of at least 36 semester hours of course work in a subject area taught in the secondary school. Course requirements for each major are available in the Division of Secondary Education Office, 2513 Lindquist Center.

Candidates for secondary school teaching certification may also receive approval to teach in additional subject area by completing an approved program of 20 or more semester hours of course work in these areas.

Secondary school teacher preparation programs are provided in the following areas:

Art

Athletic training

"Coaching

Communication Studies (Speech)

English

Foreign Languages—Spanish, French, German, Russian, and Latin

Health Education

Home Economics

Journalism

Mathematics

Music

Physical Education

Reading

Science, including general science, physical science, biology, chemistry, physics, and earth science

Social Science, including social studies education, geography, history, political science, psychology, and sociology

Available as an additional approved area only. A major in another subject matter area is required for certification.

Students planning to teach art, music, or physical education typically complete a program that prepares them both for elementary and secondary level certification.

Undergraduate candidates for certification to teach in secondary schools must complete the following requirements in addition to the requirements in their major:

One of the courses 79-300, Introduction to Teaching in a specific subject with 79-300, Introduction to Teaching in a specific subject

2 a.h.

2 a.h.

2 a.h.

3 a.h.

3 a.h.
Admission

Prior to taking most pre-professional education courses (courses numbered 25, 73, or 74) undergraduate students must be admitted to the Teacher Education Program (TEP). Application for admission to the TEP must be filed in the College of Liberal Arts Office of Academic Programs and Services. See TEP Application Packet for details. In order to be eligible for admission, students must have completed a minimum of 26 semester hours of coursework with a minimum grade point average of 2.3. Admission decisions will also be based on grade-point average in the major, and other criteria relevant to teaching success. If at any time after admission the grade-point average falls below 2.3, the student will lose eligibility for the TEP. Students should contact a College of Liberal arts advisor in their subject major field, or the Division of Secondary Education Services, N305 Lindquist Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for "certification only" do not have to apply for admission to the Teacher Education Program. Their admission to "certification only" automatically implies admission to the TEP.

Upon admission to the TEP, students will be assigned an education adviser.

Admission to Student Teaching

While admission to the TEP, which permits students to take certain College of Education courses, requires a 2.3 cumulative grade-point average, for most majors higher criteria must be met for admission to student teaching. Students should consult their secondary education adviser or the Dean of Secondary Education office for the student teaching admission requirements for their certification program.

Graduate Programs

The Division of Secondary Education offers, or jointly administers with departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communication studies education, curriculum and supervision, developmental reading, English education, foreign language education, home economics education, mathematics education, music education, physical education, science education, and social studies education. For more information contact the student's major college office. 

Art Education

Master of Arts

The master's degree program is administered by the College of Art and Art History with the cooperation of the College of Education. Students must meet a three-hour examination in art history and in studio. 

Admission

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. degree in art education from The University of Iowa or an equivalent degree from an accredited degree college or university. Application to the program must be accompanied by a representative portfolio of the candidate's work, consisting of 12 slides reproductions of work and two examples of written work. The written work may consist of papers previously written for a course or it may be original papers. These should be submitted to the office of Education, 13 North Hall. In the case of coursework deficiencies, the student may register for pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or completion of the doctoral program.

Degree Requirements

At least 60 semester hours of graduate work beyond the M.A., plus the student's adviser, including at least 15 semester hours in the School of Art and Art History, 15 semester hours in the
education seminars, 15 semester hours in a related area (e.g., art, anthropology, psychology, sociology), and 15 semester hours in
the arts and tools courses. 7E:106 or 7E:306 Introduction to Research in Art
Education.

Comprehensive examinations, both oral and written—The written examination
comprises 90 percent of the total research problem assigned by the examination committee
to be completed within 14 days, after which an oral examination on the project is
held (the written portion of the examination is not intended to relate directly to the dissertation proposal) 
and satisfactory completion of a written dissertation for at least 12 semester hours, which constitutes a contribution to
scholarship; the student is expected to prepare a dissertation proposal and defend it before the dissertation
commits an oral examination on the dissertation is the Ph.D. final exam.

Communication Studies Education

Master of Arts

The purpose of the program is to prepare teachers and supervisors of speech
communication for secondary and post-secondary positions.

Admission

Candidates must have a grade-point average of 2.75. Candidates without a prior
academic background in speech communication may find it necessary to take additional courses beyond the
minimum requirement. Application should be made to the Department of
Communication Studies, Communication Studies Building.

Degree Requirements

A minimum of 30 semester hours of approved graduate courses, at least 24 of
them at The University of Iowa:

Two graduate courses in communication education;

Two graduate courses in a second division of the department;

Two graduate courses in a third division of the department;

Introduction to Research, 7E:300;

A graduate seminar involving significant research; and

Other courses recommended by advisor and consultation.

Successful completion of a paper or project involving substantial scholarly investigations
and writing, usually done in a seminar, or done independently under the direction of
an advisor. This project or paper must be circulated to the committee with the
comprehensive examination.

A comprehensive examination consisting of three three-hour seminars to be defended and
limited by the student and an adviser when the plan of study is prepared.

Curriculum and Supervision

Master of Arts

The purpose of the program is to prepare teachers and administrators for positions
as consultants, directors, and coordinators in secondary school curriculum
development.

Admission

Students must meet the general requirements of the Graduate College.
Teaching experience is desirable.

Degree Requirements

Common Core (19-26 s.h.):

7E:186 Curriculum Foundations 2-3 s.h.
7P:117 Philosophy of Education
(or its equivalent) 2 s.h.
7P:253 Educational Measurement and Evaluation 3 s.h.
or
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
or
7P:150 Introduction to Educational Measurement 3 s.h.
7E:281 Junior High School and
Middle School Curriculum 3 s.h.
7E:291 Secondary School Curriculum 3 s.h.
7E:300 Design and Organization of
Curriculum 3 s.h.

Research tool—selected in consultation
with the adviser, typically
7P:145 Introduction to Statistical
Methods 3 s.h.

Capstone (4-6 s.h.)—In a subject field such as
English;

Electives—selected in consultation with
adviser to complete a total of 30-32
semester hours.

Thesis—for students electing a thesis
program.
7E:395 Master’s Degree Thesis 2-4 s.h.

Two three-hour comprehensive examinations—one in curriculum and one in
a related field in education or in a
cognitive field or two two-hour examinations.

Doctor of Philosophy

The purpose of the program is to prepare students for leadership positions in the
field of curriculum for secondary schools, state departments, intermediate systems,
and college teaching.

Admission

Students must meet the general
requirements of the Graduate College, hold
a valid teaching certificate, and have at
least two years of teaching experience.

Applicants must be approved for admission
by a faculty review committee.

Degree Requirements

Common Core (36-42 s.h.):

5E:186 Curriculum Foundations 2-3 s.h.
5E:281 Junior High School and
5E:291 Secondary School Curriculum 3 s.h.
5E:300 Design and Organization of
Curriculum 3 s.h.
5E:391 Problems of Curriculum
Planning 3 s.h.

At least two advanced supervision
or courses in secondary or
elementary school subject fields
6 s.h.

7P:257 Educational Measurement
and Evaluation 3 s.h.
or
7P:255 Construction and Use of Evaluation
Instruments 3 s.h.
or
7P:150 Introduction to Educational
Measurement 3 s.h.

7E:390 Problems in Supervision 2 s.h.
7P:253 Individual Instructors in
Secondary Education (Practicum) 2-3 s.h.

A minimum of two research tools of
typically statistics, data
processing, research design, or
foreign language
5-12 s.h.

Electives (32-35 s.h. to be chosen in
consultation with adviser)
Recomended electives include:
7P:130 Educational Sociology 3 h.
7P:117 Philosophy of Education 2 s.h.
7P:131 Educational Psychology 3 s.h.
7P:120 Introduction to Psychology
of Reading 3 s.h.
7P:297 Administrative Leadership
Theory 4 s.h.
7W:120 Introduction to
Instructional Design and
Technology 3 s.h.
7P:330 Exceptional Persons
3 s.h.

All doctoral candidates are required to
complete at least 8 semester hours of
cognate work in such areas as sociology,
psychology, or political science.

7E:405 Ph.D. Thesis 10-18 s.h.

Candidates take three three-hour
comprehensive examinations in
secondary school curriculum and two related fields in
education or in a cognitive field.

Developmental Reading

Master of Arts

This program is designed to prepare
graduate students for positions as reading
English Education

Master of Arts

The purpose of the program is to prepare supervisors of English, department chairs, and curriculum specialists for secondary schools, and to prepare teachers for teaching in the specialized areas. Application should be made to the College of Education.

Admission

Students must meet the general requirements of the Graduate College, hold a secondary school teaching certificate, and have acquired a minimum of 30 semester hours in English. Preferred applicants will have a grade-point average of 3.0 or above and a verbal score above the fifth percentile on the Graduate Record Examination (GRE) Aptitude Test. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

Students specialize in English education and one or two other areas. The other areas may be any of the following: liberal arts, foreign high school teaching, curriculum, reading, composition, speech and drama, language development, visual and auditory literacy, literature, children and adolescents. An advisor and the student will plan the program of study. Nine semester hours must be earned in courses numbered 790 (or above). The student will take a comprehensive examination in English education and in his/her chosen areas.

Master of Arts In Teaching

The M.A.T. degree program is designed for students with an undergraduate degree in English who have had few or no professional education courses. Successful completion of the program enables the student to receive certification as a secondary school teacher of English.

Admission

Applicants must have a bachelor's degree in English and at least a minimum undergraduate grade-point average of 3.0. Since this is a certification program, candidates cannot have qualified for certification previously. They are expected to have no more than 6 semester hours of coursework prior to admission.

Degree Requirements

A minimum of 45 semester hours; At least 18 semester hours of graduate courses offered by the Department of English, planned with the adviser to supplement the undergraduate major; and the following professional education courses: 75:131 Educational Psychology 3 s.h.
75:107 History of Western Education 3 s.h.
75:117 Philosophies of Education 3 s.h.
75:100 Individual Projects in Laboratory Practice 1-3 s.h.
75:120 Human Relations for the Classroom Teacher 3 s.h.
75:106 Methods in High School Reading 3 s.h.
75:105 Developing Reading Skills in the Secondary School 3 s.h.
Basic competency in microcomputing 3 s.h.
75:115 Methods in English 3 s.h.
75:107 Seminar: Curriculum and Student Teaching 3 s.h.
75:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
A two-part comprehensive examination is required, one part covering methods, materials, and curriculum for high school English and the second part covering one-half the comprehensive examinations administered in Master of Arts (Literary Studies) candidates in the Department of English.

Doctor of Philosophy

The purpose of the program is to prepare teacher educators in English, specialists in literature for young people, specialists in reading at secondary and junior college levels, and coordinators/supervisors of language arts programs.

Admission

Students must meet the requirements of the Graduate College for admission to a doctoral program. In addition they must have a secondary school teaching certificate, grade-point average of 3.0 and Graduate Record Examination (GRE) aptitude test scores above the fifth percentile on verbal test (Iowa norms), and a two-year successful teaching experience. Students admitted to the program are expected to provide evidence of the successful completion of a substantial research paper for a course included in the first 15 resident hours. Students must maintain a 3.0 grade-point average while they are in the program. Their candidacy is revocable annually.

Degree Requirements

A minimum of 72 semester hours is required.
Area of Specialization: Teaching of English (3-15 s.h.), including four of the following courses:
75:290 Supervision of Elementary School Language Arts 3 s.h.
76:288 Seminar: Research and Current Issues

English Education/EDUCATION 303
76:335 M.A. Seminar: English Education 3 s.h.
75:415 Ph.D. Seminar: English Education (required for two or more registrations) 2-4 s.h.
Cognates or electives (54-63 s.h.) may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, special education, educational media, rhetoric and composition, linguistics, literary criticism, educational measurement, speech and drama arts. Students and advisor will select two areas of specialization in addition to the teaching of English. Areas of specialization will usually require a minimum of 9 semester hours of work in an area.

Facility in a research tool agreed upon by the student and advisor that will help the student achieve professional objectives.

Comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The minimal requirements for eligibility to write cognate or elective area examinations varies, the general requirement is three courses in an area.

Dissertation (typically 12 semester hours).

Exercise Science and Physical Education

Master of Arts

See "Exercise Science and Physical Education" in the "College of Liberal Arts" section of the Catalog.

Doctor of Philosophy

The Ph.D. program in Physical Education program is also described in "Exercise Science and Physical Education" in the "College of Liberal Arts" section of the Catalog.

Foreign Language Education

Master of Arts in Teaching

The M.A.T. program in foreign language education is designed for superior liberal arts graduates who have had few or no professional education courses. Successful completion of the program leads to secondary school teacher certification.

Admission

A bachelor's degree with a major in a foreign language and a 3.0 undergraduate grade-point average is required.

Degree Requirements

At least 18 semester hours of graduate courses in a foreign language department and the following professional education courses:
75:290 Introduction to Teaching
Foreign Language 2 s.h.
75:131 Educational Psychology 3 s.h.
Home Economics Education

Master of Arts

The M.A. program is administered by the Department of Home Economics and is described in the "College of Liberal Arts" section of the Catalog.

Master of Arts in Teaching

Admission to the M.A.T. program is through the College of Education, however, the program requirements are given under "Home Economics" in the "College of Liberal Arts" section of the Catalog.

Mathematics Education

Master of Arts

The purpose of the program is to provide students not intending doctoral study with advanced specialization in mathematics and education as a better foundation for teaching at the secondary level.

Admission

Candidates must meet the admission requirements of the Graduate College and, except in unusual cases, hold a professional certificate to teach secondary school mathematics.

Degree Requirements

A minimum of 10 semester hours of course work in mathematics approved by the student's advisor.

A minimum of four courses in mathematics education, which must include:

- 72:215 Current Issues in Mathematics Education 2-3 s.h.
- The remaining three courses are to be selected from the following:
- 72:231 Teaching Computer Applications in Secondary School Mathematics 2-3 s.h.
- 72:232 Teaching Geometry 2-3 s.h.
- 72:237 Teaching Mathematics in Middle School and Junior High School 2-3 s.h.
- 72:230 Teaching the Low Achiever in Mathematics 2-3 s.h.
- 72:239 Teaching of Algebra 2-3 s.h.
- 75:330 Seminar in Mathematics Education 2-3 s.h.

Two courses selected from a cognate area in education. Suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.

Sufficient electives in mathematics and education selected with the approval of the advisor to complete 32 semester hours of credit.

Three-two hour comprehensive examinations on secondary mathematics education, the second in mathematics, and the third in a related area.

Master of Science in Mathematics with Education Option

The purpose of the program is to prepare certified teachers with advanced specialization in mathematics and mathematics education. This program is especially recommended for students considering work for the Ph.D. in mathematics education. This program is administered by the Department of Mathematics. Application should be made to the Department of Mathematics.

Admission requirements are the same as for the M.A. in Education.

Degree Requirements

Minimum of 24 semester hours in the Division of Mathematical Sciences including a two-semester sequence in analysis and a two-semester sequence in algebra.

Two courses in mathematics education;

Comprehensive examination of six hours on the prior course in analysis, algebra, and education. The examination will assess the candidate's knowledge of mathematics and his or her knowledge of the reference of specific concepts related to the teaching of secondary school mathematics.

Doctor of Philosophy

The program for a Ph.D. in mathematics education is administered by the College of Education. The 72 semester hours include work taken toward the master's degree. (All credit must be updated if taken more than five years previously.) Minimum course requirements are for exceptional students. Typically, a program will involve 80 to 90 semester hours.

The purpose of the program is to prepare supervisors, teacher educators, personnel of community college personnel, and researchers in mathematics education.

Admission

Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

Degree Requirements

The mathematics education program has the following degree requirements:

A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including 231:115, 231:155, 231:220, and 231:211. Courses jointly listed in education will not fulfill this requirement.

Students who have completed their mathematics requirement at another institution must complete a minimum of 6 additional semester hours of course work in mathematics at The University of Iowa, which are to be chosen with the approval of the advisor.

Competency in two areas of mathematics including statistics and computer science, and algebra or analysis (both may be chosen). This competency will be determined by satisfactory performance on master's degree examinations or their equivalent.

A minimum of 24 semester hours of course work in the College of Education. Courses meeting this requirement are to be chosen from mathematics education and from other professional education courses appropriate to the candidate's career plan.

At the completion of the program, the student must:

Have a cumulative grade-point average of 3.0 or above on all graduate work in mathematics.

Have a grade-point average of 3.0 on all University of Iowa graduate work in mathematics.

Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

Three-hour written comprehensive examinations, one in mathematics education and two examinations selected from the fields of education or mathematics. An oral examination follows the written examinations. It is the student's responsibility to plan a program with faculty members in the cognate areas to select courses that will
prepare the student for these examinations.

Competency in one computer language and is educational statistics is required.

A dissertation on a research problem in mathematics education. A prospectus of the proposed research will be presented to the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination will be conducted in defense of the dissertation. Normally, a student will be expected to earn a minimum of 10 semester hours of dissertation credit.

Music Education

Both the Master of Arts and Doctor of Philosophy degree programs in music education are administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

Master of Arts

The purpose of the program is to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum. The degree program may be taken with thesis (30 semester hours minimum) or without (36 semester hours minimum).

Admission

The student must be a certified music teacher or in the process of completing certification requirements. An undergraduate grade-point average of 2.5, exclusive of grades in music, is required for admission to regular status.

Degree Requirements

General requirement:
25:32 Introduction to Graduate Study in Music
2 s.h.

Music theory:
5:240 Introduction to Contemporary Analysis and Theory
3 s.h.

5:240 Elective
3 s.h.

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

Music History and Literature:
25:301 Advanced History and Literature of Music I
3 s.h.

25:302 Advanced History and Literature of Music II
3 s.h.

25:303-317 Electives
3 s.h.

Specific hour and course requirements in the music history and literature area are determined by scores on the advisory examinations.

Music Education (12-17 a.h.)
75:141 Psychology of Music
2 s.h.

75:206 Curriculum-Development in Music Education
2 s.h.

75:240 Foundations of Music Education
2 s.h.

Electives to be selected in consultation with the advisor. (May include thesis)
4-9 s.h.

Two semester hours of ensemble credit.

Two-semester hours of applied music.

The amount of elective credit applicable toward the M.A. degree is dependent upon the scores earned on the music advising examinations and the amount of credit earned in music education elective courses. In the semester in which the student expects to complete the degree, the candidate must take a final written master's degree examination (12 semester hours). Areas of concentration covered in the examinations include music education, music theory, and music history and literature.

Doctor of Philosophy

The purpose of the program is to prepare students for teaching, research, or administrative function in the following types of positions:

College positions—teachers of music education classes and activities; band, chorus, and orchestra directors; and administrators of music departments and schools of music.

Public school positions—music supervisors, research and curriculum consultants, and directors of city or district school music programs.

Admission

Application is made to the School of Music. For admission to the Ph.D. program in music education a student must have a 3.5 grade-point average on graduate work (excluding grades in ensembles), have a score above the 95th percentile on the verbal ability section of the Graduate Record Examination (GRE) Aptitude Test, hold or be qualified for a valid teaching certificate, and have at least five years of successful music teaching experience.

In addition to the specific admission requirements stated above, an appraisal of teaching success, academic potential, and writing ability in music education or liberal arts qualifications for admission are held.

Degree Requirements

The Ph.D. degree is granted on the basis of achievement (as determined by course grades and evaluations on the comprehensive final examinations) and not on the accumulation of semester hours of credit. The course requirements and semester hours listed below are to be considered minimum requirements for the typical student in preparation for the satisfactory passing of the comprehensive and final examinations.

Music (21-29 s.h.)

General

25:322 Introduction to Graduate Study in Music
5 s.h.

25:206 Curriculum Development in Music Education
5 s.h.

25:240 Foundations of Music Education
5 s.h.

Electives

25:141 Behavioral Research in Music
5 s.h.

25:206 Curriculum Development in Music Education
5 s.h.

25:240 Foundations of Music Education
5 s.h.

25:240 Electives
5 s.h.

75:440 Social and Psychological Factors in Music Education
5 s.h.

75:141 Seminar: Contemporary Issues in Music Education
3 s.h.

75:142 Seminar: Special Topics in Music Education
3 s.h.

75:143 Introduction to Statistical Methods
3 s.h.

75:144 Selected Applications of Statistical Techniques
3 s.h.

Electives

M.A. level requirements

Electives

Courses are selected in consultation with the student's advisor on the basis of advisory examination scores and the student's professional goals and goals. Students take courses from applied music, ensemble, theory, history and literature, music education, education, statistics, and psychology to total 19 to 25 semester hours.

Dissertation

Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations

The comprehensive examination is an inclusive evaluation of the student's knowledge selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.
Science Education
The following advanced degrees are offered in Science Education:
Master of Arts in Teaching
Master of Science (with or without thesis)
Educational Specialist
Doctor of Philosophy
All programs are described in the "College of Liberal Arts" section of the Catalog under "Science Education."

Social Studies Education
Master of Arts
The purpose of the program is to provide an opportunity for interdisciplinary work in history, social sciences, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competency in the social sciences and greater proficiency in teaching and supervision.

Admission
Applicants must have a minimum of 20 semester hours of undergraduate credit in the area of history and/or the social sciences from an accredited institution, a cumulative grade-point average of 3.5, a 3.0 grade-point average in history and social science courses, and a minimum Graduate Record Examination (GRE) Aptitude Test score of 1000 (composite of verbal and quantitative).

Degree Requirements
Thirty-eight semester hours described among history, social sciences, or related areas, with a minimum of 10 semester hours in each of the fields chosen; or Thirty-eight semester hours distributed among the disciplines listed above and education;

Nine semester hours of the total 38 semester hours must consist of graduate courses numbered 200 or above, distributed in the fields selected for concentration. A minimum of 2.3 semester hours of 298, 292, 290, or 272 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed;

Thesis (if this option is selected)—A research or investigative problem in history, the social sciences, or related areas in which the thesis director will be a member of the appropriate department; or an investigatory problem in social sciences education, in which case the thesis director will be a member of the College of Education.

Comprehensive Examinations—A two-hour written examination in each of the three fields selected for concentration. The oral examination will be conducted by the candidate's committee as a whole.

Doctor of Philosophy
The purpose of the program is to prepare secondary school supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and pedagogy.

Admission
Applicants must have a bachelor's degree in history or the social sciences; master's degree in history, the social sciences, or education. They must satisfy the requirements for admission to a doctoral program in the Graduate College; and have a grade-point average of 3.0 or above. A minimum Graduate Record Examination (GRE) Aptitude Test score of 1000 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent if no thesis was written as part of the M.A. An interview is required prior to regular admission.

Degree Requirements
A minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree and not including tool requirements.

The 90 semester hours are to be distributed among history, social sciences, or related areas, and professional education, depending on the background and goals of the candidate. Seminars and courses numbered 200 or above are required in each of the areas of study constituting the concentration.

A minimum of 2.3 semester hours of 298, 292, 290, or 272 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Tool requirements are tailored to the individual's program and may consist of foreign language or other requirements. Normally statistic plus research techniques in one or more fields chosen or a language is required.

Comprehensive Examinations—Normally three three-hour examinations, unit in each of the areas of study, will be required. Depending on the distribution of work, the six hours of written examinations may be reassigned;

The Ph.D. examining committee consists of a minimum of one faculty member from the liberal arts disciplines and one from social studies education. The remaining members (to make the minimum of five as required by the Graduate College) will be selected with regard to the nature of the student's Ph.D. program and distribution of course work. An oral examination will be conducted by the committee at a whole following the written examination;

Alternatives to the traditional written comprehensive course of studies are considered by the candidate's committee.

Dissertation:
A dissertation on a research problem in history, the social sciences, or related areas in which case the dissertation director will be a faculty member of the appropriate department, or on a research problem in the social studies education, in which case the dissertation director will be a faculty member of the College of Education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion, an oral examination will be conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy: grade-point average of 3.0 plus annual renewal.

Assistantships
A limited number of half-time assignments are offered. Pursuing Ph.D. degrees in secondary education, social sciences, or history, students may register for no more than 12 semester hours per quarter, and, except with special permission, must register for at least 6 semester hours per semester. Assistantship assignments vary. Some involve teaching undergraduate courses or supervision of practicum experiences, and others primarily involve research activities. Assistantships in some liberal arts departments may also be available to advanced education students. Candidates with appropriate credentials should apply directly to the department in question or consult the College of Education adviser directing the program in their field.

Courses
79.90 Introduction to Teaching Art 2 cr.
(Shaping and motivating art teachers and administrators is the purpose of this course, which is designed to enable teachers to teach for six hours per week in a cooperating school in addition to one course of study. Prerequisites: the Teacher Education Program.
79.91 Introduction to Teaching English and Speech 2 cr.
(Offered to secondary English and speech teachers and students in secondary schools. Typically requires four to six hours per week in a cooperating school in addition to one course of study. Prerequisites: admission to the Teacher Education Program.
75:594 Seminar: Secondary Reading
Analysis and evaluation of selected research in secondary reading utilizing historical and comparative procedures. Prerequisites: 20:304 and consent of instructor.

75:652 Supervision Methods to Improve Instruction
Advanced student teachers experience to develop management skills in critical areas, covering interpersonal competencies, decision-making, performance feedback, and self-evaluation. Special emphasis on development of feedback techniques, discipline and maintenance of effective teaching. Approaches for master teachers, department heads, principals, superintendents, and board members. Prerequisite: consent of instructor.

75:650 Introduction to Research in Art Education
Methods of inquiry useful for research in art education and related disciplines: methods of research design. Required of all Ph.D. candidates in art education. Same as 11:650.

75:601 Seminar: Art Education 1
Theory of teaching as related to teaching, instructional and learning models, current research experiences in visual and art-related arts; aesthetic model as it relates to other disciplines in education; review of available educational programs. May be repeated.

75:600 Seminar: English Education
Discussion of significant developments in English education from primary and college through graduate levels. Prerequisite: consent of instructor. Same as 15:600.

75:610 Seminar: Read Development in Literature for Adolescents
Recent research for teenagers and young adult students or their children. Offered one semester each year.

75:650 Seminar: Mathematics Education
Analysis of current research, research methodologies, and curricular developments in mathematics education. Topics vary. Permission for Ph.D. candidates. May be repeated.

75:641 Seminar: Special Topics in Human Development
Seminar of current research topics pertaining to human development to graduate students in human development. Available to other graduate students with permission of instructors. May be repeated.

75:647 Special Workshop in Early Childhood Development
Special workshop to develop interdisciplinary approaches for teaching rural families in public schools and colleges. Offered offered on an ad-hoc basis and irregularly during the school year. May be repeated.

75:645 Public School Curriculum in Physical Education
Theories of major social, psychological, and educational factors influencing physical education curriculum. Credit given for investigation or creative projects. Prerequisite: 20:517. Consent.

75:539 Seminar: Science Education 2
Studies of educational theory and current trends in science education, research interests, trends, topics, and issues. May be repeated.

75:502 History of Science and the Bible in Science Education
20:517 Seminar: Science Education 3
Science education program and departmentalization of science education, teaching, and administration. Prerequisite: 20:517.

75:527 Science Education Internship
Teaching and Learning Strategies
75:507 Science Education: Research Models and Conceptual Science Internship
75:474 Seminar: Current Issues in Art Education
Analysis of literature in art education and related aspects of Ph.D. candidates in art education. May be repeated.

75:500 Current Research Emphasis in Special Education 1
Review of significant ongoing research programs in the field, emphasis on faculty level of research.

75:500 Problems in Superintendence 2
In-depth study and examination of problems clearly concerned with supervision: alternative possibilities for those who are in school administrator changes, designing curriculum development systems.

75:501 Problems of Curriculum Planning
Organizing and conducting programs of curriculum development: techniques for developing curricular materials. Includes field experience.

75:502 Field Service Project in Secondary Education
Prerequisite: consent of instructor.

75:503 Master's Degree Thesis
Prerequisite: consent of instructor.

75:506 Educational Special Projects in Secondary Education
Prerequisite: consent of instructor.

75:450 Seminar: Child Art and Art Education 2
Analysis and evaluation of current concepts of infant and child development, perceptions, creativity and art education; historical developments of theories of child art development, and art education. Same as 15:450.

75:490 Research in Art Education
Individuals' research under supervision; applicable to thesis preparation and to doctoral projects; may be repeated.

75:491 Research in Science Education 1
Planning of individual research projects by M.S. and Ph.D. candidates.

75:495 Ph.D. Seminar: English Education
This course is a seminar for graduate students majoring in English education who have either completed or are completing the English education program. Credit is granted only on permission of the instructor. Same as 20:495.

75:490 Social and Psychological Factors in Health Education
Social and psychological factors which affect the current research and instruction in health education. Credit given for investigation or creative projects. May be repeated.

75:484 Seminar: Health Education
Stresses the importance of public issues in health education. Prerequisite: 20:517. Consent.

75:505 Seminar: Health Education
Stresses the importance of public issues in health education. Prerequisite: 20:517. Consent.

Special Education

75:200 Introduction to Special Education
Analysis and evaluation of current research in special education. Required of all Ph.D. candidates in special education.

75:200 Problems in Special Education
In-depth study and examination of problems clearly concerned with supervision: alternative possibilities for those who are in school administrator changes, designing curriculum development systems.

75:201 Problems of Curriculum Planning
Organizing and conducting programs of curriculum development: techniques for developing curricular materials. Includes field experience.

75:202 Field Service Project in Secondary Education
Prerequisite: consent of instructor.

75:203 Master's Degree Thesis
Prerequisite: consent of instructor.

75:206 Educational Special Projects in Secondary Education
Prerequisite: consent of instructor.

75:450 Seminar: Child Art and Art Education 2
Analysis and evaluation of current concepts of infant and child development, perceptions, creativity and art education; historical developments of theories of child art development, and art education. Same as 15:450.

75:490 Research in Art Education
Individuals' research under supervision; applicable to thesis preparation and to doctoral projects; may be repeated.

75:491 Research in Science Education 1
Planning of individual research projects by M.S. and Ph.D. candidates.

75:495 Ph.D. Seminar: English Education
This course is a seminar for graduate students majoring in English education who have either completed or are completing the English education program. Credit is granted only on permission of the instructor. Same as 20:495.

75:490 Social and Psychological Factors in Health Education
Social and psychological factors which affect the current research and instruction in health education. Credit given for investigation or creative projects. May be repeated.

75:484 Seminar: Health Education
Stresses the importance of public issues in health education. Prerequisite: 20:517. Consent.

75:485 Seminar: Health Education
Stresses the importance of public issues in health education. Prerequisite: 20:517. Consent.

Program Requirements

Elementary Mental Retardation

First Year
71:300 Introduction to Assessment in Special Education
71:300 Exceptional Persons
71:300 Mental Retardation
71:90 Introduction to Microcomputer for Teachers

Second Year
71:311 Teaching Mildly Mentally Retarded
71:312 Practicum with Mildly Retarded
71:316 Teaching Moderately Retarded
71:314 Practicum with Moderately Retarded

Third Year
71:192 Supervised Teaching with Mentally Retarded

Students completing this program will be recommended for State of Iowa Approval (Menta Disabilities I-9).

Undergraduate Programs

The Division of Special Education expects its graduates will continue to find opportunities as teachers of special classes in the public schools or as resource persons for teachers working with handicapped children in regular classrooms. Opportunities in the latter area reflect the trend in special education toward the accommodation of handicapped children in regular classrooms with supplemental help, rather than for the education of handicapped children in special classes.

The University of Iowa program in special education aims to give the B.A. or B.S. student a knowledge of the characteristics of exceptional children, education programs currently provided for exceptional children, methods of teaching exceptional children, and practical experience with exceptional children. Students in special education may be admitted to one of three certification programs:

To teach the mentally retarded at the elementary level (State of Iowa Approval B1) with the option of also qualifying to teach the physically handicapped;

To teach the mentally retarded at the secondary level (State of Iowa Approval B2, Endorsement 20);

To teach preschool handicapped (State of Iowa Approval 9).

The elementary-level program requires that students also complete the requirements for certification in elementary education (State of Iowa Approval 10). At the secondary level, students must complete the regular secondary education program and the major in special education, including student teaching with the mentally retarded at the secondary level. Students interested in the preschool handicapped must complete a major in early childhood education.

Special Education

Claire Kennedy A. Karole
Professor: Alan B. Frank, Alfred W. Hase, Clifford G. How, Kenneth A. Karole, Mary P. Reihm
Assistant professor: Louis F. Brown, Stewart H. Roberts, Timothy E. Zirk, John Kelly, Jr., David Wacker

Assistant professor: Annette J. McKown
Assistant professor: Teresa K. Sappen, Gary M. Staud

Adjunct assistant professor: Audrey Mueller

Lectures: Donna Converse, Paul Fitzgerald, Phyllis M. Staud

Degrees offered: B.A., B.S., M.A., E.D.S., Ph.D.

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Program Requirements

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71:300 Exceptional Persons
71:300 Mental Retardation
71:90 Introduction to Microcomputer for Teachers

Second Year
71:311 Teaching Mildly Mentally Retarded
71:312 Practicum with Mildly Retarded
71:316 Teaching Moderately Retarded
71:314 Practicum with Moderately Retarded

Third Year
71:192 Supervised Teaching with Mentally Retarded

Students completing this program will be recommended for State of Iowa Approval (Menta Disabilities I-9).
Elementary Physical Handicap

First Year
70.150 Orientation to Rehabilitation of Physically Handicapped Child 3 s.h.
3.15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.

Second Year
70.130 Methods of Teaching Physically Handicapped 3 s.h.

Third Year
70.131 Supervised Teaching with Physically Handicapped 7 s.h.
Students completing this program are recommended for State of Iowa Approval A (Physical Disabilities K-9).

Sophomores and juniors in special education are eligible to apply for the Janet R. Zoeller Memorial Tuition Stipend which will be awarded during the junior or senior year. The recipient of this stipend is chosen on the basis of financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education. Preference is given to individuals completing the elementary physical disabilities program.

Secondary Mental Retardation

First Year
71.120 Introduction to Assessment in Special Education 2 s.h.
21.130 Exceptional Persons 3 s.h.
71.130 Mental Retardation 3 s.h.
75.100 Issues in Education 2 s.h.
75.75 Educational Psychology and Measurement 3 s.h.
7S.91 Audiovisual Equipment for Instruction 1 s.h.
75.92 Introduction to Microcomputing for Teachers 1 s.h.
36.14 Introduction to Sociology: Principles 3 s.h.
or 36.16 Introduction to Sociology: Problems 3 s.h.

Second Year
71.32 Teaching Mildly Mentally Retarded: Secondary 3 s.h.
71.33 Practicum with Mildly Handicapped 2 s.h.
71.131 Teaching Moderately Mentally Retarded 2 s.h.
71.34 Practicum with Moderately Handicapped 2 s.h.
71.133 The Culturally Different in Educational Settings 3 s.h.
7S.166 Methods: Mathematics for Low Achievers 3 s.h.
75.195 Developing Reading Skills in the Secondary Schools 2-3 s.h.
71.150 Career Guidance and Job Placement (undergraduate students cannot take this course by correspondence) 3 s.h.
7P.170 Introduction to Psychology 3 s.h.
7W.185 Selection and Use of Media 3 s.h.
34.141 Juvenile Delinquency or 3 s.h.
24.1410 Criminology 3 s.h.
71.131 Introduction to Learning Disabilities 3 s.h.
71.132 Introduction to Behavioral Disorders 3 s.h.
71.170 Human Relations for the Classroom Teacher 3 s.h.
A course in American history or American government 2 s.h.
Third Year
71.192 Supervised Teaching with Mentally Retarded 15 s.h.
Students completing this program are recommended for State of Iowa Endorsement 3 (Secondary Teaching) and Approval A (Mental Disabilities 7-12).

Preschool Handicap

First Year
71.200 Introduction to Assessment in Special Education 1 s.h.
71.136 Exceptional Persons 3 s.h.
71.135 Mental Retardation 3 s.h.
71.130 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
3.15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
7W.92 Introduction to Microcomputing for Teachers 1 s.h.

Second Year
71.120 Methods of Teaching Preschool Handicapped 3 s.h.
71.36 Practicum with Preschool Handicapped 2 s.h.
71.136 Teaching Moderately Mentally Retarded 2 s.h.
71.34 Practicum with Moderately Handicapped 2 s.h.
71.193 Supervised Teaching with Preschool Handicapped 7 s.h.

Students completing this program will be recommended for State of Iowa Endorsement 9 in Preschool Handicapped.

Admission

Fifteen students who have completed at least one year of college course work are admitted to special education each year. Admission decisions are based on cumulative college grade-point average and experience with the handicapped.

Examples of acceptable experience (volunteer or paid) with handicapped persons are counseling in a summer camp program for the handicapped, working with the handicapped sponsored by community or religious organizations, extensive child- sitting with handicapped children, and acting as teachers in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

Graduate Programs

The purpose of the graduate programs in special education is to train new personnel and to retain existing staff, so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate programs have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee. Graduate programs are offered for certification only at the M.A., Ed.S., and Ph.D. degree levels. Initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning disabilities or behavioral disorders, school psychology, work-study coordination, administration of special education, and teacher education.

Master of Arts

Most students admitted to the M.A. program in special education are seeking an approval to teach in the behavior disorders and mental retardation field. The M.A. program prepares students to function as teachers in resource, integrated, and self-contained classrooms. The program requires a minimum total of 38 semester hours. A list of required courses is available from the division office.

To be admitted to the M.A. program, students must be qualified in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preference.

Some students who do not wish to seek certification may be admitted to the M.A. program in special education. Numbers admitted depend on the resources available.

Education Specialist

Special Education

The purpose of the program is to provide advanced graduate training for professionals in the field of special education. This may include individuals in consultation, supervisory work, and work study coordination is special education. The program requires a minimum total of 60 semester hours.

In addition to the general graduate admission requirements listed below, requirements for admission to this program...
Admission

Graduate admission requirements of the Division of Special Education conform to those used generally by the College of Education, with the following additional completion of the Graduate Record Examination (GRE) Aptitude Test before being admitted to the program (combined scores of 1000 or above are preferred); and

Documentation of having worked successfully with children and youth.

Facilities

Special facilities available to students in special education include the University Hospital School (for mentally and physically disabled) and the University Psychoanalytic Child Psychiatry Program (for children and youth with behavioral disorders).

Financial Aid

A limited number of teaching and research assistantships are available to full-time students in M.A., M.Ed., Ph.D. programs. The Janet Zober Memorial Tuition Stipend is available to an undergraduate student in special education.

Courses

TO 320 Introduction to Assessment in Special Education 3 s.h.

TO 322 Methods of Developing Learning Experiences 3 s.h.

TO 328 Special Education for Middle Childhood and Adolescence 3 s.h.

TO 330 Preventing Mental Retardation: Early Education 3 s.h.

TO 331 Preventing Mental Retardation: Secondary Education 3 s.h.

TO 405 Preventing Mental Retardation: Special Education 3 s.h.

TO 420 Preventing Mental Retardation: Special Education 3 s.h.

TO 425 Preventing Mental Retardation: Special Education 3 s.h.

TO 430 Preventing Mental Retardation: Special Education 3 s.h.

TO 440 Preventing Mental Retardation: Special Education 3 s.h.

TO 450 Preventing Mental Retardation: Special Education 3 s.h.

TO 460 Preventing Mental Retardation: Special Education 3 s.h.

TO 470 Preventing Mental Retardation: Special Education 3 s.h.

TO 480 Special Education for the Visually Impaired 3 s.h.

TO 490 Special Education for the Hearing Impaired 3 s.h.

TO 500 Special Education for the Physically Handicapped 3 s.h.

TO 510 Special Education for the Mentally Retarded 3 s.h.

TO 520 Special Education for the emotionally disturbed 3 s.h.

TO 530 Special Education for the Severely Handicapped 3 s.h.

TO 540 Special Education for the Severely Handicapped 3 s.h.

TO 550 Special Education for the Severely Handicapped 3 s.h.

TO 560 Special Education for the Severely Handicapped 3 s.h.

TO 570 Special Education for the Severely Handicapped 3 s.h.

TO 580 Special Education for the Severely Handicapped 3 s.h.

TO 590 Special Education for the Severely Handicapped 3 s.h.

TO 600 Special Education for the Severely Handicapped 3 s.h.

TO 610 Special Education for the Severely Handicapped 3 s.h.

TO 620 Special Education for the Severely Handicapped 3 s.h.

TO 630 Special Education for the Severely Handicapped 3 s.h.

TO 640 Special Education for the Severely Handicapped 3 s.h.

TO 650 Special Education for the Severely Handicapped 3 s.h.

TO 660 Special Education for the Severely Handicapped 3 s.h.

TO 670 Special Education for the Severely Handicapped 3 s.h.

TO 680 Special Education for the Severely Handicapped 3 s.h.

TO 690 Special Education for the Severely Handicapped 3 s.h.

TO 700 Special Education for the Severely Handicapped 3 s.h.

TO 710 Special Education for the Severely Handicapped 3 s.h.

TO 720 Special Education for the Severely Handicapped 3 s.h.

TO 730 Special Education for the Severely Handicapped 3 s.h.

TO 740 Special Education for the Severely Handicapped 3 s.h.

TO 750 Special Education for the Severely Handicapped 3 s.h.

TO 760 Special Education for the Severely Handicapped 3 s.h.

TO 770 Special Education for the Severely Handicapped 3 s.h.

TO 780 Special Education for the Severely Handicapped 3 s.h.

TO 790 Special Education for the Severely Handicapped 3 s.h.

TO 800 Special Education for the Severely Handicapped 3 s.h.

TO 810 Special Education for the Severely Handicapped 3 s.h.

TO 820 Special Education for the Severely Handicapped 3 s.h.

TO 830 Special Education for the Severely Handicapped 3 s.h.

TO 840 Special Education for the Severely Handicapped 3 s.h.

TO 850 Special Education for the Severely Handicapped 3 s.h.

TO 860 Special Education for the Severely Handicapped 3 s.h.

TO 870 Special Education for the Severely Handicapped 3 s.h.

TO 880 Special Education for the Severely Handicapped 3 s.h.

TO 890 Special Education for the Severely Handicapped 3 s.h.

TO 900 Special Education for the Severely Handicapped 3 s.h.

TO 910 Special Education for the Severely Handicapped 3 s.h.
Student teaching at West High School, Iowa City
Engineering is the profession in which a knowledge of the quantitative and natural sciences is applied to develop ways of economically utilizing the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include industrial design, product development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first responsibility is to provide high quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling. The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive research activities in a concentration area and is expected to result in original contributions to the literature at the Ph.D. level.

Programs

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) degree in over 40 fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the Master of Science degree without designation of a major. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of chemical and materials engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor's degree in the College of Liberal Arts, an M.B.A. degree in the College of Business Administration, and a bachelor's degree in the College of Engineering. In addition, a combined bachelor's/master's degree program is available through the undergraduate engineering program and the graduate programs in urban and regional planning in the College of Liberal Arts. These combined degree programs normally may be completed in about five years. In addition, a minor in the College of Business Administration or a minor in minors in any degree-granting departmental or approved program by the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Undergraduate Programs

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit, including satisfaction of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 56 semester hours and must have a minimum grade point average of 2.0 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, the candidate must have completed 225.135 Engineering Calculus I, or their equivalent, with a grade of "C" or better, in each.

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. If a student does not graduate on the list indicated in the application, he or she must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an Iowa resident applicant must have completed the American College Tests with a composite standard score of 24 or above and a standard score of 24 or above in mathematics (or equivalent SAT scores); Successfully completed at least one and one-half units of algebra, one unit of plane geometry, and one-half unit of trigonometry; and

 Ranked in the upper one-half of his or her high school graduating class.

Non-resident freshman applicants must have completed the same units of mathematics as required for resident applicants, and

 Ranked in the upper 30 percent of his or her graduating class, and

Completed the American College Tests with a composite score of 25 or above and with a mathematics score of 25 or above (or equivalent SAT scores). High school physics and chemistry are recommended for applicants.

Transfer applicants must submit a formal application and an official transcript of college work undertaken at other institutions. Each applicant must have: Completed at least one semester of calculus or its equivalent; and Maintained a cumulative grade-point average of at least 2.2. Fulfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. From the applicants, the College of Engineering selects those who appear to be best qualified for the study and practice of engineering.

Undergraduate Curriculum

The undergraduate curriculum in engineering is designed to ensure an adequate foundation in mathematics, basic and engineering sciences, the humanities and the social sciences, and engineering design. In addition to this basic general preparation in an engineering specifically appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curriculum is to provide as integrated educational experience directed toward development of the ability to apply pertinent knowledge to the formulation and application of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for practice of engineering. The curriculum is structured into four parallel streams extending through most of the entire four years of the undergraduate study. The streams are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and humanities and social sciences develop the background required for the engineering core. The practice of engineering involves the ability to utilize this education to determine practical solutions to real problems. This ability is developed in the analysis and design stream. The course sequence in this stream begins with 53.1 Introduction to Engineering in the first semester of the freshman year and terminates with senior-level design courses during the senior year. Approximately one-half of the courses in the four streams are common to all of the programs. This group of common courses,
called the engineering core, consists of courses in mathematics, chemistry, physics, rhetoric, and engineering science and design, which provides instruction and practice in speaking, writing, and critical reading. Most of the core courses are scheduled in the first two years. This permits the first semester of the freshman year to be entirely common and the first three semesters to be arranged so that a student may follow any program major, transfer between majors when eligible, or not declare a major during this period, with only minor adjustments in scheduling. This gives students time to become familiar with the various major areas before choosing a specific engineering program.

In addition to the core program and the humanities and social sciences sequence, which also is common to each program, each degree program specifies a required group of courses that provides a common depth and breadth of topics to every student in each of the curricular programs. These courses provide the common background that the faculty expects of every graduate. The remaining courses are technical electives chosen by the student in consultation with his or her academic advisor. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken at the senior level.

The curriculum for the freshman year is:

First Semester
4.43 Principles of Chemistry I 3 s.h.
10.1 Rhetoric 4 s.h.
10.3 Rhetoric 4 s.h.
22M.45 Engineering Calculus I 4 s.h.
57.1 Introduction to Engineering 2 s.h.
57.3 Engineering Graphics 2 s.h.
Total 15 s.h.

Second Semester
4.16 Principles of Chemistry Lab I 2 s.h.
10.2 Rhetoric 4 s.h.
or Humanities or social science elective 3 or 4 s.h.
22M.46 Engineering Calculus II 4 s.h.
22M.49 Matrix Algebra for Engineers 2 s.h.
57.4 Engineering Computations 3 s.h.
57.5 Arts 1 s.h.
Total 16 or 17 s.h.

A maximum of 4 semester hours is allowed for satisfaction of the rhetoric requirement. Students who qualify for 103 are able to satisfy the requirement with this single course, while those required to complete the 6-semester-hour sequence of 101-2 may apply only 4 semester hours toward their engineering program.

Credits earned for courses below the level of the beginning courses specified in each engineering curriculum will appear on a student's grade report and permanent record, but generally will not be used to satisfy any elective or required course requirements for an engineering degree. Examples of courses in this category include: rhetoric 101-2; 22M.1-22M.20; chemistry 45-45.8; and physics 29-29.10.

The courses listed above are required of all students in engineering. 4.14 Principles of Chemistry II is recommended during the second semester for students who are biochemistry or chemical engineering majors. Students in these majors normally will require taking 22M.6 (Matrix Algebra for Engineers) until the first semester of the sophomore year. Students pursuing a major in industrial engineering should review the social science requirement specified for that major before selecting any social science courses.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences requirements is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student selects, with the adviser's approval, a minimum of 16 semester hours of humanities and social science electives that includes at least 6 semester hours of course work in the humanities and at least 6 semester hours in the social sciences. Because the social science courses in the industrial engineering major are specified and are set open to the same selection process, students considering a major in this program should consult the industrial and management engineering program requirements presented later. Courses which are primarily mathematical or scientific in nature and those which are specifically designed to develop introductory language skills or speaking or writing skills, art/music or music skills are not acceptable as electives even though they are offered as electives below.

The humanities electives may be selected from any of the following departments and schools: African-American World Studies; American studies; art history; classics; Asian languages and literature; communication studies; theatre arts; English; history; literature; science, and the arts; music; philosophy; religion; linguistics, or other departments approved by the curriculum committee of the College of Engineering. Following an introductory level course, students select a minimum of 3 semester hours of advanced (100-level) course work to secure the desired depth of knowledge in an elected subject of study. This advanced course shall be at least for the same department as the introductory course unless prior to this time obtained from the College of Engineering Curriculum Committee. Language courses will not satisfy any of the humanities and social science requirements unless for courses are at or beyond the junior year.

The social science electives may be selected from the following departments: anthropology, communication studies, theatre arts, economics, geography, political science, psychology, sociology, journalism and mass communication, and social work. These requirements are approved by the curriculum committee of the College of Engineering. To assure an adequate depth of knowledge in a chosen area of study and following an introductory level course, students select a minimum of 3 semester hours of advanced (100-level) course work. This advanced course work must be in the same department as the introductory course unless prior approval has been obtained from the College of Engineering curriculum committee.

Combined College of Engineering-College of Liberal Arts Program

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible for admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students entering this program are advised to the director of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined college degree program should contact their interest by contacting the director of the College of Engineering or the College of Liberal Arts.

A plan of study must be developed and approved by the advisor from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. The student in the combined program normally can meet all baccalaureate degree requirements of both colleges in about four academic years. However, the exact length of time required to complete the combined degree program will be determined by the major areas of study selected in liberal arts and engineering.

Students selecting this program are required to complete the General Education Requirements and the requirements for the major as well as the residence requirement in the College of Liberal Arts. The specific engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities and social sciences regularly are accepted for two college degrees, the student is, in many cases, satisfying the requirements for two colleges by taking one particular course.
Combined College of Engineering-M.B.A. Program

An integral part of the College of Business Administration (MBA) program has been initiated by the College of Business Administration for superior undergraduate students who want to begin their M.B.A. studies while finishing their engineering degree. Strategically selected course work may allow such students to complete a bachelor's degree in four years and the M.B.A. degree in the fifth year. Exceptional students with insight and competence in the applied sciences and business administration may enhance their managerial career opportunities through this new combined degree program.

Students who qualify for the M.B.A. program must have completed two years of engineering study, earn a 3.5 grade-point average or better, and indicate the intent to pursue both degree programs simultaneously on a full-time basis. Students selected for admission to this program may be candidates for 800 scholarships per semester while undergraduates, and candidates for $1,000 fellowships per semester ($700 for summer session) while graduate students. The undergraduate scholarships will be provided by the College of Engineering and the graduate fellowships by the College of Business Administration.

Admission to the M.B.A. program does not guarantee admission to the Graduate College. However, since the undergraduate admission requirements are very high and the applicant has demonstrated academic potential, it is anticipated that admitted students should readily qualify for admission to the graduate M.B.A. program upon application. A cooperative education internship experience is required for admitted M.B.A. students. This professional experience with private industry is considered to be an integral part of the M.B.A. degree and generally is scheduled for the summer semester following completion of the bachelor's degree.

The M.B.A. curriculum is designed for students who have completed courses in business or are reasonably prepared for advanced business study. The program consists of the components: foundation courses, integrated core courses, and elective courses. The integrated core courses and elective courses must be completed after the student has been admitted to the Graduate College. Foundation courses, however, may be completed while the student is enrolled as an undergraduate. Engineering students may anticipate qualifying for probationary status in or equivalent course work for a waiver from certain foundation courses.

Engineering students who are assigned a major adviser in the College of Engineering upon acceptance into the M.B.A. program, advising for the M.B.A. program, will be provided by the operations coordinator of the College of Business Administration. Coordination of the combined degree program for the A.M.B.A. students will be provided by the assistant dean of the College of Engineering and the associate dean of the College of Business Administration.

Combined B.S. in Engineering-
M.S. Planning Degree Program

A program combining a bachelor's degree in engineering with a master's degree in urban and regional planning has been developed for students who want to prepare to pursue a professional career in urban planning, or a related field, such as real estate, transportation, housing, environmental quality, public services, or economic development.

This special program enables a student to acquire a B.S. in engineering and an M.S. in planning in a total of five academic years. In this accelerated program, course work is reduced by up to one academic year from the separate requirements for the two degrees. The student should apply for the joint program either when applying for admission to the engineering college or prior to the completion of his or her sophomore year following matriculation. Applications should be submitted to the College of Engineering Planning Degree Program, College of Engineering, The University of Iowa. The curriculum is based on the general philosophy that planners must develop both theoretical and practical abilities to permit them to identify issues and recommend effective solutions. In keeping with these, as well as the professional skills (e.g., report writing, presentations and briefings, computer literacy, team management) that allow them to function effectively in various organizational and political environments. Students must take the course in the last two years of the undergraduate program and the first two years of the graduate program. The course includes 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. The approved plan is to be submitted to the Office of the Dean and placed in the student's permanent file before the student begins course work in the second program. Applicants must be on campus and must be approved by the student's faculty adviser in the second program and the department chair of that program (the current petition form is attached) and submitted to the Office of the Dean in the student's permanent file.

Minors

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor in any degree-granting department or approved program in the College of Liberal Arts. A notation of the minor will appear on the student's permanent record.

Students must inform the Registrar's Office of their fulfillment of minor requirements when they apply for a degree to assure that the graduation is indicated on their transcript.
as having been disclosed for poor scholarship.
Withdrawal cards for students enrolled in the college will be signed by the assistant to the dean only after recommendation of the student's adviser and department chair.

Pass-Nonpass Option
A maximum of two courses taken in the colleges of Liberal Arts or Business Administration on a pass-nonpass basis may be applied toward satisfaction of the humanities and social sciences requirement. Students who want to take such courses in liberal arts or business administration on a pass-nonpass basis must meet the conditions and follow the procedures specified by those colleges. The pass-nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/nonpass basis under the following conditions:

The signatures of the adviser and instructor must be obtained on the proper form and the completed form must be submitted to the registrar by the student within the time period established by university policy.
The mark of P (pass) will be awarded where the final course grade earned was A, B, or C; the mark of N (nonpass) will be given for grades of D or F; marks of P and N will not count as grades of passing or failing. Grades of P and N will not appear on the grade-point average and the mark of N will not count as earned hours.

No course work taken in the College of Engineering under a 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 student may be elected only prior to completion of a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a pro rata basis. For example, a student transferring no more than 42 semester hours of applicable engineering course work may use this option for a maximum of these courses, while a student with between 42 and 86 semester hours of credit may use this option for no more than two courses, and students with 86 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Courses
The noncredit professional seminar courses, that are required in each of the professional programs, are offered only on a satisfactory-fail basis. No other engineering courses are offered on this basis. No F (failure) grade earned for such a class will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades
A mark of I (Incomplete) or W (No report) that is not replaced by a final grade prior to the announced deadline during the student's next regular semester of registration will be replaced by a final grade of F (failure), with the exception that students with incompletes from the spring semester are exempt from completing the course during the succeeding summer session.

Recognition for Academic Achievement
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 students in the next highest five percent. Ranking is based on the student's grade-point averages for all college-level study undertaken up to his or her final registration.

To be eligible for this form of recognition, the student must take his or her final 40 semester hours of study in residence in the college, and may not have completed on leave at least 45 semester hours of study in the college before his or her final registration. Students in the combined engineering-literary arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

Dean's List
Engineering students who achieve grade-point averages of 3.3 or above during a given semester on 12 or more semester hours of graded work, with no 1 or 2 grades still standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.

President's List
Students earning a 4.0 grade-point average for two consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work, with no 1 or 2 grades standing on the current or past semester's record, are recognized by inclusion on the president's list.

Other College Policies

Advanced Placement Program
Students who have earned college-level courses in high school through the Advanced Placement Program (AP) of the College Entrance Examination Board and achieved satisfactory scores on the comprehensive examination administered through the Advanced Placement Programs will be awarded college level credit. For example, students earning scores of 3, 4, or 5 in an AB-level calculus course in the Advanced Placement Program will receive 4 semester hours of credit for course M235, Engineering Calculus I. Likewise, students earning scores of 3, 4, or 5 in a BC-level calculus course will receive 8 semester hours of credit for M235 and M236, Engineering Calculus I and II. Credit earned through other AP courses also may be applied to other engineering course requirements as appropriate to content and level, as long as credit for those requirements has not already been earned by other exams or by course enrollment. Questions about AP credits should be directed to the assistant to the dean.

CLEP Credit
Credit earned through the College-Level Examination Program (CLEP) may be applied to meet appropriate requirements in engineering. For example, up to 7 semester hours of credit earned on the social science general exam and/or on the subject exams on separate social science topics may be applied to satisfy a portion of the social science requirement. Similarly, up to 7 semester hours of credit in the general arts and/or foreign subject exams on the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of 15 semester hours of credit earned through the CLEP program may be applied to the total humanities and social science requirements in the College of Engineering. Credit earned on other CLEP subject exams also may be applied to meet other course requirements as appropriate to content and level on a non-duplicate basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination

Students who have acquired knowledge in an academic subject through courses other than formal course registrations may be granted the opportunity to obtain credit toward graduation by examination. For example, engineering course may be earned by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to apply for an examination should contact the assistant to the dean.

Credit by Validation

Students with course credits obtained at an unaccredited institution may request the validation of this credit up to a maximum of 15 semester hours. Credit by validation may be granted after the student has completed at least 24 semester hours of college credit at The University of Iowa, which will include appropriate courses for
which the work to be validated are prerequisites. Students with unaccepted work who wish to utilize this option should contact the dean during the first semester of enrollment in the College of Engineering.

Credit from Other Colleges
Course requirements in engineering may be satisfied by credits earned from courses taken in other colleges of the University or at other accredited colleges or universities. When the student applies for admission to the College of Engineering, he or she must submit official transcripts from each college attended along with the application for admission. After the credit has been certified as college level work from an accredited institution by the Office of Admissions and after admission has been granted, the credit is evaluated by the assistant to the dean either prior to 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 assistant to the dean. If a course-by-course basis, there is a match in the content and level of the transfer courses, and the grades earned for such courses are C or better. Students who want to satisfy the engineering science and humanities requirements or The University of Iowa elective requirements by transfer work should contact the assistant to the dean for details. Students planning to attend a two- or four-year institution before transferring to the College of Engineering are well advised to discuss the planned transfer of credits with the departmental advisor at both schools before enrolling in a transfer program. The College of Engineering does have recommended course lists for most Iowa community colleges and some four-year colleges. The course lists are available by contacting the appropriate department to determine that the student will be enrolled in the College of Engineering, all course work taken at other institutions must be approved by the dean, and if credit is to be applied to meet the course requirements.

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 form is available in the office of the dean. The form must be completed by the student and approved by the student's advisor and the chair of the academic department in which the student is majoring. If the petition involves a required engineering core course, then it must also be approved by the associate dean who administers the college curriculum committee. Substitutions for required engineering core courses are to occur infrequently and only under compelling circumstances. Substitutions of courses that are required by the student's department program and the College of Engineering for that department of approval, three courses may be substituted only by the faculty advisor and the department chair. All petitions must be forwarded to the office of the dean 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 instructor and the advisor. The mark of R will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory. If unsatisfactory, the mark of W will be assigned. Courses completed with a mark of R do not meet any requirements nor 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, the student must enter the course on the registration card in the usual manner but must indicate that zero credit hours should be indicated. The instructor's authorizing signature and the student's signature are also required on the reverse side of the registration card. 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 one and one-half weeks of a summer session.

Student Academic Misconduct
Regulations dealing with cases of cheating or plagiarism are delineated by a collegiate policy. In cases of cheating on exams or quizzes, 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 recorded as an F, the student may not drop the course nor 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 concerning grades of student-student collaboration 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, except as agreed upon by the instructor in the course syllabus in which the policy 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. The student is notified by the office of the dean of any disciplinary action required and is informed of appeal procedures if he or she wants to protest the action.

Student Complaints Concerning Faculty Actions
In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty first should attempt to resolve the issue with the faculty member. Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member's department. Students who are unsatisfied with the decision of a faculty member or a department chair may seek assistance from the faculty ombudsman when attempting to resolve a complaint. However, grievances generally can be satisfactorily resolved most expeditiously at the faculty or chair level. If the student is not satisfied with the outcome of this procedure, he or she should discuss the complaint with the dean of engineering.

Student Organizations and Activities
The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college, such as the student and faculty publications, the homecoming court program, MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers' Week. The organization also acts on college-wide matters of general student interest.

Engineering students publish their own student journal, the IowaScape Engineer. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of The American Institute of Chemical Engineers, the Institute of Industrial Engineers, the Society of Computer Simulation, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers are active at The University of Iowa.

The UI 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. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. Phi Lambda Upsilon, honorary chemistry and chemical engineering society; Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society; Alpha Eta Rho, honorary industrial engineering society, and Pi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in their respective fields.

Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of minorities and women in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Pi Tau Tau, a national professional engineering fraternity, is affiliated with the college and draws its membership from students throughout the college.
Professional Registration

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step is the procedure for students enrolled in an accredited program is to pass an examination in engineering fundamentals given at the University near one time of graduation. Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam. Following graduation and the successful completion of the engineering fundamentals exam, the graduate receives an Engineer-in-Training (E.I.T.) certificate. The next step in the procedure is to pass the advanced exam in a specialty area following a minimum of four years of approved professional experience. At this point the graduate engineer is a registered professional engineer.

Graduate Programs

The general rules and regulations for the graduate programs are established by the College of Graduate Studies. However, the specific admission and degree requirements for each graduate engineering program are included in the individual program sections. Also included in these sections is the availability of financial aid and other resources that are available in each program and the principal areas of study and research.

College Facilities

Engineering Library

The Engineering Library is a center of college activity. Its collection includes 70,000 books and 300 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 100 library users.

Iowa Computer-Aided Engineering Network (ICAEN)

This facility provides a key support for instructional computing in the College of Engineering. ICAEN consists of approximately 40 Apollo Computer engineering work stations. Each of these is a powerful computer together with a high-resolution video display for graphics applications. The Apollos are tied together by a high-speed network, allowing all students to share common data, programs, and peripheral devices. The Apollos are augmented by a large number of Apple Macintosh personal computers. The Multistations can, at the user's desire, function as stand-alone work stations, or be tied to the Apollo network or Weqo Computing Center facilities. A variety of printers, plotters, and other specialized devices are available through the ICAEN system. Software support for ICAEN includes several programming languages as well as graphics and word processing facilities. Also available are a number of contemporary software packages for computer-aided engineering, including two- and three-dimensional drafting and design, surface and solids modeling, finite element modeling and analysis, system simulation, and electronic design.

ICAEN facilities are used by students throughout the undergraduate and graduate engineering programs and in all engineering disciplines. Two large student laboratories provide engineering students with access for ICAEN. The Howard J. Eder Laboratory for Engineering Computing, located on the fourth floor of the Engineering Building, houses 20 Apollo workstations and 40 Macintoses together with printers, plotters, and other related equipment. A second, functional electronics laboratory is located on the fifth floor. Small work station clusters for software and course development work are located in each of the six engineering departments.

Computer-Aided Engineering (CAE) Laboratory

The CAE laboratory is used for teaching computer-aided engineering. The laboratory contains interactive computer graphics terminals connected to a PRIME 750 mini-computer. The CAE system includes digitizing tablets, a line printer, and a projection system. It also is used for teaching computer-aided graphics and design at both the undergraduate and graduate level. Software is available for a wide range of applications, optimal design, finite element analysis, structural analysis, and system design analysis. The mechanics of structural system office and plant layout, chemical engineering process flow sheet preparation, and several others. The main center of graphics terminals and associated plotters is located in Room 1300 of the Engineering Building.

Computer Services

In addition to local facilities provided by ICAEN services of the Weqo Computing Centers are available to students and faculty of the college. Access to Weqo facilities is available at all computer laboratories in the college. The Center for Computer-Aided Design has dedicated PRIME 750 and VAX 11-780 minicomputers, two high speed array processors, and extensive graphics equipment for research in computer-aided design. The Computer-Aided Design Laboratory has a PRIME 750 and graphics equipment for instruction. The electrical and computer engineering department has two VAX 11-750 superminicomputers and several color graphics work stations for teaching and research. In addition, a number of minicomputers and microcomputers are available. The department is equipped for specialized use by students and faculty.

Employment Placement Services

The Engineering Placement Office is a resource for both centers for students and alumni who are seeking professional employment. Placement offices conduct career days and other student and alumni events. Employment specialists are on-campus interview, job listings, information and assistance with resumes, cover letters, interview techniques seminars, and general advice relative to career decisions.

Organization of the College

The College of Engineering is organized into six departments and three research units. The department of biomedical engineering, chemical and materials engineering, civil and environmental engineering, electrical and computer engineering, industrial and equipment engineering, and mechanical engineering each has its own vice-chairman. Each department offers an undergraduate degree program in the exception of biomechanical engineering, all other graduate degree programs. A program track in biotechnical science is available to undergraduates.

In addition to the administrative departmental programs, the college offers an undergraduate and graduate degree program for students who want to tailor-make a special program that may not be available through the traditional majors. Information about the degree programs follows in later sections.

The three research centers are the Iowa Institute of Hydraulic Research, the Center for Materials Research, and the Center for Computer-Aided Design. Descriptions of these units follow.

Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IIHR), a unit of The University of Iowa's College of Engineering, has been widely acknowledged as having given to Iowa an international leader in numerous areas of fluid mechanics and hydraulic engineering.
It was organized formally in 1931 to coordinate capabilities, facilities, and resources available at the University for research on problems in engineering hydraulics and hydrology, and soon broadened its scope of activities to include fluid mechanics.

Active programs of basic and applied engineering research, conducted in five studios, well-equipped laboratories, with total floor space exceeding 72,000 square feet, currently are being pursued at IHR in the following areas: atmospheric and turbulent shear flows; boundary layers (with emphasis on thick and free three-dimensional boundary layers); viscous aerodynamics; computational fluid mechanics and hydraulics; ship hydromechanics; hydraulics; water-resource systems; river engineering; sediment-transport mechanics; ice-crust engineering; hydraulic structures; biological fluid mechanics; water-quality dynamics; hydraulic-energy dissipation; and pump intake.

High-level involvement of graduate students is a hallmark of most IHR projects. Because it is a unit of the College of Engineering, and because of its heavy involvement in fluids engineering for industry and its broad-based fundamental research program, IHR provides advanced-degree students and postdoctoral trainees unique opportunities for valuable research, educational, and engineering experiences.

Center for Materials Research

The Center for Materials Research was founded on the philosophy that the technologies of the future require the integration of a variety of disciplines in order to transcend traditional methods of research and development. The center has a strong focus on programs of fundamental and applied research in biomedical engineering, with particular emphasis on biomechanics and biofluids. Some research projects include traumatic head and spinal injuries, hemodynamics, cardiac mechanics, prosthetic heart valves, bone and ligament biomechanics, replacement, total joint replacement, pulsatile electromechanical effects on tissue, vibration white noise, and biomedical image analysis and processing.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the center. The faculty member of the center also engage in numerous consulting activities for industry, government, and other universities.

Center for Computer-Aided Design

The Center for Computer-Aided Design was founded to enhance research and development of design methods using modern computer technology. The research program of the center is focused on mechanical systems and electronic design, control and system analysis, structural optimization, and dynamic computer graphics. A research facility consisting of primary systems and interactive computers, CIP 6000 and 6430, is part of the computer system, and other related computer support equipment supports the facility, staff, and students associated with the center.

Course Numbering System

The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix separated by a colon. The first digit of the prefix is 5, which identifies the course as one offered by the College of Engineering. The second digit of the prefix identifies the engineering core courses or the courses offered by the departments as follows:

1—Biomedical engineering
2—Chemical and materials engineering
3—Civil and environmental engineering
5—Electrical and computer engineering
6—Industrial and management engineering
7—Engineering core
8—Mechanical engineering

The two- or three-digit suffix of a course number identifies the level and type of course. Generally, the suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates.

The table below provides more detailed listings of course numbers and the information they convey about level and type of course:

1.0—Freshman core courses
10.19—Sophomore core courses
20.29—Junior core courses
30.49—Required courses in undergraduate programs
Biomedical Engineering

Sophomore Year

First Semester

228.60 Matrix Algebra for Engineers

228.61 Differential Equations for Engineers

57.10 Dynamics

57.12 Systems to Electrical Science

57.13 Principles of Animal Biology

Total

Second Semester

228.42 Vector Calculus for Engineers

57.12 Linear Systems Analysis

721.25 Biomedical Engineering

74.1 Human Safety and social science elective

Total

Junior Year

First Semester

225.39 Probability and Statistics for Engineers

57.10 Biological Systems Analysis

57.16 Thermodynamics

57.18 Principles of Electronic Instrumentation

Total

17 a
Courses
51311 Cooperative Education Training
51313 Biomaterials, Biomedical Engineering
51314 Biomedical engineering project or internship requiring participation in the Cooperative Education Program and approval of faculty advisor.

51431 Biomedical Systems Analysis
51432 Design of modern control systems, introduction to digital signal processing, design and analysis of control systems. Prerequisites: 51314, 51444, 51462.

51444 Biomaterials Engineering Design
51462 Advanced digital signal processing. Prerequisites: 51411, 51444, 51462.

51465 Biomaterials Engineering Design II
51470 Analog and digital signal processing. Prerequisites: 51411, 51465.

Graduate Program
The biomedical engineering faculty supervises students interested in pursuing graduate study in biomedical engineering through graduate programs, such as the graduate program in electrical and computer engineering. Biomedical engineering, dentistry, and medicine.

Senior Year
First Semester
51180 Biomedical Measurements I
51185 Biomedical Engineering Design I
51222 Principles of Design II
51242 Intermediate Engineering Physics II
51291 Professional Seminar: Biomedical Engineering
51311 Cooperative Education Training
51431 Biomedical Systems Analysis
51444 Biomaterials Engineering Design I
51462 Advanced digital signal processing. Prerequisites: 51411, 51465.

Second Semester
51186 Biomedical Engineering Design II
51245 Biomedical Computer Systems
51315 Cardiovascular Biomechanics
51316 Biomedical Instrument Design
51317 Biomedical Materials I
51318 Ceramic and Glasses as Biomedical Materials
Research Facilities and Laboratories
Biomedical Measurements Laboratory
This laboratory is equipped to test mechanical properties of biomaterials and thin sectioning of hard tissues and prostheses in biology. This laboratory is also used for 51180 Biomedical Measurements I.

Biomaterials Laboratory
This laboratory is equipped to test mechanical properties of biomaterials and thin sectioning of hard tissues and prostheses in biology.

Hemodynamics Laboratory
This laboratory is equipped to study cardiovascular fluid dynamics, particularly blood flow velocity profiles and flow in the human heart.

Applied Mechanics Laboratory
This laboratory is equipped to study the biomechanics and tissue response of biomedical materials under complex dynamic loading conditions.

Biomedical Image Processing and Computing Laboratory
This laboratory has an AEC/COM image processing system used to digitize anatomical slides, photographs, X-rays, and CAT scan images with a resolution of 640 x 480 pixels and to distinguish 256 colors.

Courses
51311 Cooperative Education Training
51313 Biomaterials, Biomedical Engineering
51314 Biomedical engineering project or internship requiring participation in the Cooperative Education Program and approval of faculty advisor.

51431 Biomedical Systems Analysis
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Chemical and Materials Engineering

Graduate Seminars and Advanced Topics

Chemical and Materials Engineering

Chair: Gregory P. Curtiss

Professor: Vivid Reddoin, Gregory P. Curtiss

Professor: Karl Kammermeyer, James G. Cullum

Professor: Barbara Dutta, Arthur F. Vetter

Professor: David W. Lokken, David G. Rottman

Visiting Assistant Professor: Randal A. Yost

Degree Offered: B.S.E., M.S., Ph.D.

Chemical and materials engineering is the art and science of engineering applied to industrial processes in which raw materials are changed or separated into useful secondary materials. Chemical and materials engineers develop, design, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by industry, including chemical, petroleum, and coal industries, as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers. They are engaged in research, process and product development, design, actual production operation, and sales. Many experienced engineers become managers or administrators.

Courses that have been designed primarily for the chemical and materials engineering program are identified by the digit 2 in the second position of the course number prefix.

Undergraduate Program

The Bachelor of Science in engineering degree prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry, a sequence of mathematics courses, and the common engineering core courses, which together provide a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year

First Semester

2260 40 Linear Algebra for Engineers 2 s.h.
2260 62 Vector Calculus for Engineers 3 s.h.
5710 50 Dynamics 3 s.h.
5711 10 Introduction to Electrical Science 3 s.h.
5712 50 Materials Science 3 s.h.
Humanities or social science electives 3 s.h.
Total 16 s.h.

Second Semester

2264 41 Differential Equations for Engineers 3 s.h.
5712 50 Linear Systems Analysis 3 s.h.
5720 50 Mechanics of Fluids and Transfer Processes 4 s.h.
5241 30 Process Calculations 3 s.h.
2518 11 Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year

First Semester

4131 3 Physiological Psychology 3 s.h.
4292 1 Intermediate Engineering Physics II 3 s.h.
5711 50 Principles of & 3 s.h.
5720 50 Electronics for Electronic Instrumentation 4 s.h.
5219 50 Professional Seminar 5 s.h.
Chemical engineering 0 s.h.
Total 17 s.h.

Second Semester

4132 3 Physical Chemistry 3 s.h.
4144 3 Physical Measurements 3 s.h.
2545 3 Chemical Engineering Thermodynamics 3 s.h.
5244 3 Mass Transfer Operations 3 s.h.
5219 50 Professional Seminar 5 s.h.
Chemical engineering 0 s.h.
Total 16 s.h.

Senior Year

First Semester

4121 3 Organic Chemistry I 3 s.h.
2546 3 Chemical Reaction Kinetics 3 s.h.
2820 3 Economics and Control in Design 3 s.h.
5247 3 Unit Operations Laboratory I 2 s.h.
Humanities or social science electives 3 s.h.
Total 15 s.h.
Graduate Programs

The Department of Chemical and Materials Engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, students gain an understanding of the principles of engineering science and then apply those principles to contemporary problems such as energy, environment, and materials. The emphasis is on research since most of the opportunities for graduates are in research and development. About one-third of the program is devoted to a research project, and a thesis is required for each degree.

All candidates in advanced degree programs are required to assist faculty members in teaching or research as part of the graduate training.

Research

The current research strengths of the Department of Chemical and Materials Engineering are in the areas of catalysis and reactor design, environmental contamination, particulate material processing sciences, separation science, bioprocessing, and biochemical engineering.

Catalysis and Reactor Design

Within the general field of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of heterogeneous, homogeneous, and multiphase catalysis; gas-solid reactions; modeling and analysis of heterogeneous reactors; and design and novel reactor-separators.

Environmental Contamination

Contamination of the environment in which we live and work is a major problem facing today's engineers. The Department of Chemical and Materials Engineering has had an active research program in the environmental areas of atmospheric air pollution, indoor air pollution, and hazardous waste. The faculty is continuing their research activity in air pollution while placing an increased emphasis on aerosol contamination of work environments and products with particular application to the microelectronics manufacturing industry.

Particulate Material Processing

Theoretical and experimental studies in morphological analysis of particulate materials are being conducted. Morphological analysis is concerned with the measurement of particle size, particle shape, texture, chemical properties, and physical properties. These methods are applied to particulate formation processes and studies of particle and bulk behavior. Examples include wear debris analysis, crystalization and precipitation (formation processes), and dust explosions and contamination of particles (particle behavior).

Separation Science and Bioprocessing

Separation processes constitute a major portion of the plant operations leading to the production of finished chemical and biochemical products. Research at The University of Iowa is devoted to the development of new techniques as well as to obtaining a more fundamental understanding of the underlying physicochemical principles involved in existing separation methods. The work is broad, interdisciplinary, and important for the future.

Master of Science

A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in the Summer and Evening Class Program as resident credit may not exceed 8 semester hours. However, 6 semester hours may be completed in residence at another recognized graduate college or through the Guided Correspondence Study Program at The University of Iowa.

The minimum course work requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours may be devoted to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0. Each M.S. degree candidate must defend his or her thesis at the final oral examination. Although it is possible to obtain an M.S. degree in one year, many students spend 2 to 4 semesters to complete the requirements.

Doctor of Philosophy

The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of set minimum hours of credit. However, the candidate normally is expected to have completed three academic years of residence or, for two years if he or she already holds a recognized master's degree. The minimum grade-point average required to complete at least 72 semester hours of graduate credit. A Ph.D. candidate is expected to maintain a minimum grade-point average of 3.5.

All doctoral students are required to pass a written and oral comprehensive examination prior to candidacy for the degree. The written examination may be a special design project or, at the discretion of the examining committee, it may consist of a written examination covering graduate coursework. These examinations are arranged by members of the examining committee. The examinations may be repeated. The rules for the comprehensive examination may be found in the manual of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program.

Admission

Full admission to graduate study in this program is granted to students having a B.S. degree in chemical engineering with satisfactory grades from a recognized American college or university. Graduates of foreign universities are also accepted, depending on evaluation of their records. For the M.S. program, a grade-point average of at least 3.5 is required. For the Ph.D. program, a grade-point average of 3.0 based on 12 or more semester hours of graduate work, or 2.7 based on the entire record consisting of courses for which the student has less than 12 semester hours of graduate work. Conditional admission may be granted if the above requirements are not met and approval is obtained from the chair of the chemical and materials engineering department. A grade-point average of at least 2.3 is required or completion of the application.

Applicants should take the verbal, quantitative, and advanced placement parts of the Graduate Record Examination (GRE). Aptitude Test, and scores of the test should also be sent with the application.

Graduate courses in chemical and materials engineering are designed for the student who has an undergraduate background in chemical engineering or the materials area. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and materials engineering. Such students need to take certain undergraduate courses as background to allow them to perform in the graduate courses with minimum difficulty. These undergraduate courses are in the nature of make-up courses and do not carry credit toward a graduate degree.
Financial Aid
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction
Engineering Core

Materials Science Laboratory
This laboratory is equipped with optical microscopes and facilities for metallurgical preparation, including a micronet, a vacuum evaporator, a metallographic cutting machine, and a solution etcher. Facilities include an X-ray diffractometer, an electron microprobe, a scanning electron microscope, a transmission electron microscope, and a SEM/EDS system. The laboratory also contains a variety of instruments for the study of crystallography and microstructure.

Computer Facilities

The departmental computer facilities consist of a network of personal computers, minicomputers, and a mainframe. The network connects to the University's data communications network, providing access to a variety of resources, including the University's mainframe, a supercomputer, and a network of workstations. The laboratory is equipped with a variety of computer hardware and software, including personal computers, minicomputers, and mainframe systems. The laboratory is also connected to the University's mainframe, providing access to a wide range of computing resources.

Surrogate Science and Catalysis Laboratories

A variety of equipment is available for the study of catalysis. Facilities include a variety of instruments for the study of crystallography and microstructure, including X-ray diffractometers, electron microscopes, and scanning electron microscopes. The laboratory is equipped with a variety of instruments for the study of catalysis, including X-ray diffractometers, electron microscopes, and scanning electron microscopes. The laboratory is also equipped with a variety of instruments for the study of catalysis, including X-ray diffractometers, electron microscopes, and scanning electron microscopes. The laboratory is also equipped with a variety of instruments for the study of catalysis, including X-ray diffractometers, electron microscopes, and scanning electron microscopes.

Materials Characterization Facilities

Facilities include a unique equipment laboratory for the characterization of powders and particulates. The laboratory contains a variety of instrumentation for the study of crystallography and microstructure, including X-ray diffractometers, electron microscopes, and scanning electron microscopes. The laboratory is also equipped with a variety of instruments for the study of catalysis, including X-ray diffractometers, electron microscopes, and scanning electron microscopes. The laboratory is also equipped with a variety of instruments for the study of catalysis, including X-ray diffractometers, electron microscopes, and scanning electron microscopes.

Courses

Special Courses

52-060 Cooperative Education Training 6 a.c.

Course description: Participation in the Cooperative Education program is for durations of one to two years. The program provides students with practical experience in industry, government, and other organizations. The program is designed to prepare students for a successful career in engineering. The program includes opportunities for students to gain practical experience in industry, government, and other organizations. The program is designed to prepare students for a successful career in engineering. The program includes opportunities for students to gain practical experience in industry, government, and other organizations.

52-061 Process Calculations 3 a.c.

Solutions of industrial problems using applied and energy balance principles, as well as heat and mass transfer principles and design codes. The course is designed to provide students with the necessary skills and knowledge to analyze and solve complex process problems. The course is designed to provide students with the necessary skills and knowledge to analyze and solve complex process problems. The course is designed to provide students with the necessary skills and knowledge to analyze and solve complex process problems.
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Civil and Environmental Engineering

Chair: Jerold L. Schoene

Undergraduate Program

Civil Engineering courses build on the College of Engineering core curriculum and are designed to give the student the broad educational background essential to modern civil engineering practice. Electives in the senior year permit greater breadth or additional concentration in areas of specialization such as structural and foundation engineering, hydraulics, environmental engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester

22M-42 Vector Calculus for Engineers 3 s.h.
57-07 Dynamics 3 s.h.
22L-11 Introduction to Elementary Science 3 s.h.
57-15 Materials Science 3 s.h.
57-16 Thermodynamics I 4 s.h.
Total 16 s.h.

Second Semester

22M-41 Differential Equations for Engineers 3 s.h.
57-19 Mechanics of Deformable Bodies 3 s.h.
57-20 Mechanics of Fluids and Transfer Processes 4 s.h.
59A Intermediate Engineering Physics I 3 s.h.
M34-03 Social Science or elective 3 s.h.
Total 16 s.h.

Junior Year

First Semester

292E Intermediate Engineering Physics II 3 s.h.
22L-21 Principles of Design I 3 s.h.
22S-39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
53-01 Social Mechanics 3 s.h.
53-04 Modern Structural Analysis 3 s.h.
59B Professional Seminar: Civil Engineering 0 s.h.
Total 15 s.h.

Second Semester

53-02 Computer-Aided Design I 3 s.h.
57-22 Principles of Design II 3 s.h.
53.05 Design of Steel Structures 3 s.h.
53-07 Principles of Hydraulics 2 s.h.
53.11 Elements of Surveying I 1 s.h.
59A Professional Seminar: Civil Engineering 0 s.h.
M34-03 Social Science or elective 3 s.h.
Total 17 s.h.

Senior Year

First Semester

53-36 Reinforced Concrete 3 s.h.
53-02 Transportation Engineering 3 s.h.
57-19 Habits 3 s.h.
59C Professional Seminar: Civil Engineering 6 s.h.
53.03 Principles of Environmental Engineering 3 s.h.
M34-03 Social Science or elective 3 s.h.
Total 15 s.h.

Second Semester

53.04 Project Design and Management in Civil and Environmental Engineering 3 s.h.
53.05 Experiments in Civil and Environmental Engineering 2 s.h.
59B Professional Seminar: Civil Engineering 6 s.h.
Technical electives 9 s.h.
M34-03 Social Science or elective 3 s.h.
Total 17 s.h.

Graduate Program

The graduate program in civil and environmental engineering at both the M.S. and Ph.D. levels is designed to prepare students for professional careers and to provide training for those who wish to pursue careers in research or teaching. The principal areas of concentration are environmental engineering and science, hydraulics and water resources, structures, geomechanics, and materials, and transportation.

Environmental Engineering and Science

The environmental engineering curriculum has two basic streams: one engineering and the other applied science. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Iowa Institute of Hydraulic Research, the Institute of Agricultural Medicine and Occupational Health, and the colleges of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one of the areas: water quality, water and wastewater treatment, or solid and hazardous wastes management.

Hydraulics and Water Resources

The hydraulics and water resources curricula are associated with the Iowa Institute of Hydraulic Research, a laboratory that is world renowned. The senior staff members of the institution are professors in the program; they devote about half of their time to teaching. The institute 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 digital computers in mathematical modeling and in the acquisition and processing of data. The water resources curriculum also has ties to the Institute for Economic Research and the colleges at Business, Law, and Liberal Arts.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula may be directed towards design, analysis, research, and management of these. Special strengths exist in the areas of design-related behavior of reinforced and prestressed concrete structures, optimal design of structural systems, computer-aided design, and behavior, and constitutive equations for materials and geotechnical materials. Course work and research in structural analysis, structural design, soil mechanics and translations, optimal design, and mechanics of materials are available.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. Cooperative relationships exist with the graduate programs in urban and regional planning and transportation studies. (See "Urban and Regional Planning" and "Transportation Studies" in the "College of Liberal Arts" section of the Catalog.)

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student's choice. Grades 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.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours from credit courses with a minimum of 6 semester hours of credit allowed for the thesis. An additional 3 semester hours are required in the nonthesis curricula.

Each student, with the approval of his or her advisor, develops a plan of study that satisfies special requirements of the curriculum chosen by the student.

All candidates for the degree are expected to have a minimum grade point average of 3.0 and must pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for all semester hours of course work vary among the specialty areas. The candidate normally will need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination is required during the second semester for students who have not earned an M.S. in an approved curriculum.

All doctoral students are required to pass a written and oral comprehensive examination before formal admission to candidacy for the degree is granted. This examination normally is taken when substantially all of the student's course work has been completed. The program culminates in a final examination, in which the candidate must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade-point average of 3.0 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences (see the "Division of Mathematical Sciences" in the "Liberal Arts" section of the Catalog).

Admission

Each curriculum of the program is quite flexible. Students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

As an applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5, 3.0 is preferred. For admission to candidacy for the doctorate, the minimum grade-point average is 3.2, based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College" section of the Catalog).

Financial Aid

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.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The freshman engineering course 571: Introduction to Engineering includes an introduction to the Iowa Computer-Aided Engineering Network (CAEN), which is described under "College Facilities." Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Apollo workstations. Students in the course Principles of Design I make extensive use of the computer hardware and software available through the Computer-Aided Engineering Laboratory, which is described in the earlier section entitled "College Facilities." For information about laboratories affiliated with core courses coordinated by other departments, see the subsection for each of the other engineering departments.

Required and Elective Course Laboratories

53-39 Soil Mechanics

The soils laboratory is equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

53-85 Experiments in Civil and Environmental Engineering

This laboratory course consists of experimentation in the hydraulics, environmental, and structural areas. It is offered at the Hydraulic Laboratory, for Environmental Engineering Laboratory, and the Materials Laboratory as a survey course with hands-on experimentation.

53-158 Principles of Environmental Engineering

The Environmental Engineering Laboratory and University Water Treatment facilities are used for demonstrations of unit operations and processes of water treatment and concepts in environmental chemistry and microbiology.

53-155 Environmental Chemistry Laboratory

The laboratory for environmental chemistry is part of the Environmental Engineering Laboratory. Standard water and wastewater quality tests are conducted and bench scale unit processes are operated and analyzed.

53-155 Environmental Engineering Laboratory

The laboratory for ichthyology is part of the Environmental Engineering Laboratory. Fish as water quality indicators and fish as bioindicators are studied in the laboratory and several field exercises are conducted on area streams and lakes.

Graduate Facilities and Laboratories

Environmental Engineering and Science Laboratory

Research in environmental engineering is conducted in the department's Philip F. Morgan Water Quality Engineering Research Laboratory at the Iowa City Municipal Wastewater Treatment Plant, and in the Environmental Engineering Laboratory at the Holdrege Water Treatment Plant. The Morgan laboratory is devoted to research activities in the wastewater
53171 Theory and Practice of Hydraulic Engineering 3.00h

53174 Hydrology 3.00h
Water resources: management, streamflow generation, evapotranspiration, infiltration, groundwater, hydrographs, rainfall-runoff relations, flood hydrograph; storage problems; flood rating, frequency, intensity and duration studies of floods; floods, design; design and operation of water projects such as canals and drainage systems for irrigation, municipal and industrial water supply, cloth drainage systems, and flood control. Prerequisite: 53174.

53176 Coastal Hydrodynamics 3.00h
Wave, tide, surface current, coastal structure, ocean sedimentary processes, coastal engineering. Prerequisite: 53176.

53179 Hydraulic Cosimulation 3.00h
Unsteady flow in closed conduits, methods of characteristics, momentum balance, centrifugal pumps, pelton turbines, Francis turbines. Prerequisites: 53179.

53192 Environmental Discharge Processes 3.00h
Removal of classical cadmium, lead, zinc, uranium, chromium, and residual metal ions from aqueous and solid waste streams. Lecture, laboratory, and field study. Prerequisite: 53192.

53193 Computational Hydrodynamics 3.00h
General computational methods for one-dimensional, two-dimensional, and three-dimensional flows. Solution of transport equations using finite difference, finite volume, and finite element methods. Prerequisite: 53193.

53196 River Flow 3.00h
Hydrologic elements, flood routing, sediment transport, flood and sediment routing, channel structure, floodplain development, flood control, and nontidal estuaries. Prerequisite: 53196.

53199 Advanced Water Resources 3.00h
Combination of 53172, emphasis on applications to basic and applied water resources. Dependence on complementing water resources, estimation techniques in quantitative analysis, reservoir design, and climate. Prerequisite: 53172.

Graduate Seminars, Advanced Topics, and Research
53191 Graduate Seminar: Civil and Environmental Engineering 3.00h
Presentation and discussion of recent advances and research in civil and environmental engineering by graduate students and faculty. Prerequisite: Permission of instructor.

53192 Contemporary Issues in Civil and Environmental Engineering 3.00h
New topics or areas of study not formally offered by department for which instructor feels timely and socially important. Prerequisite: Graduate standing.

53193 Individual Investigation: Civil and Environmental Engineering 3.00h
Research not included in current curriculum; selected project; written report; oral presentation. Prerequisite: Graduate standing and consent of faculty advisor.

53194 Research: Civil and Environmental Engineering, M.S. Thesis 3.00h
Experiential/field study of some topic. Prerequisite: Consent of faculty advisor for major. Prerequisite: Graduate standing and consent of faculty advisor.

53195 Research: Civil and Environmental Engineering, Ph.D. Dissertation 3.00h
Experiential/field study of some topic. Prerequisite: Graduate standing and consent of faculty advisor.

53196 Introduction to Computers in Electrical Engineering 3.00h
Electrical and Computer Engineering

Graduate Seminar: Civil and Environmental Engineering 3.00h
Presentation and discussion of recent advances and research in civil and environmental engineering by graduate students and faculty. Prerequisite: Permission of instructor.

53191 Contemporary Issues in Civil and Environmental Engineering 3.00h
New topics or areas of study not formally offered by department for which instructor feels timely and socially important. Prerequisite: Graduate standing.

53192 Individual Investigation: Civil and Environmental Engineering 3.00h
Research not included in current curriculum; selected project; written report; oral presentation. Prerequisite: Graduate standing and consent of faculty advisor.

53193 Research: Civil and Environmental Engineering, M.S. Thesis 3.00h
Experiential/field study of some topic. Prerequisite: Consent of faculty advisor for major. Prerequisite: Graduate standing and consent of faculty advisor.

53194 Research: Civil and Environmental Engineering, Ph.D. Dissertation 3.00h
Experiential/field study of some topic. Prerequisite: Graduate standing and consent of faculty advisor.
Senior Year
First Semester
55.12 Electrical Engineering
3 s.h.
55.15 Principles of Electrical Engineering Design II
2 s.h.
56.21 Professional Seminar: Electrical Engineering
0 s.h.
**Technical electives
6 s.h.
Humanities or social science electives
6 s.h.
Total
17 s.h.
Second Semester
55.66 Principles of Electrical Engineering Design III
2 s.h.
25.46 Modern Physics
3 s.h.
Technical Electives
3 s.h.
Humanities or social science elective
4 s.h.
Total
15 s.h.
*Professional Seminar must be taken once in the junior year and once in the senior year.
**Technical electives must include at least two of the following:
55.68 Power Systems Analysis
3 s.h.
55.130 Switching Theory
3 s.h.
55.137 Microcomputer-Based Systems
3 s.h.
55.238 Fault Tolerant Computing
3 s.h.
55.140 Elements of Thin-film Technology
3 s.h.
55.141 Power Electronics
3 s.h.
55.142 Introduction to VLSI Design
3 s.h.
55.143 Linear Integrated Circuits
3 s.h.
55.144 Digital Integrated Electronics
3 s.h.
55.146 Digital Signal Processing
3 s.h.
55.148 Digital Image Processing
3 s.h.
55.150 Communication Theory
3 s.h.
55.152 Introduction to Information and Coding Theories
3 s.h.
55.160 Control Theory
3 s.h.
55.164 Computer Based Control Systems
3 s.h.
55.165 Introduction to Robotics
3 s.h.
55.172 Solid State Physical Electronics
3 s.h.
55.175 Ultrasonic Signal Processing
3 s.h.
55.179 Optical Signal Processing
3 s.h.
Total
15 s.h.
The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Graduate Program
Electrical and computer engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available, and either may precede Ph.D. studies. Excellence in scholarship and research is stimulated by close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Each student selects an adviser and, with the adviser, plans an individual program bound only by the general guidelines imposed by the Graduate College and by the program. Close interdisciplinary lines with other departments exist both within and outside the college, especially with the departments of Internal Medicine, Radiology, Physics, computer science, and biomedical engineering. The principal areas of concentration are waves and materials, computer systems, signal and image processing, and statistical and computer-based control systems, each of which is briefly described here.

Waves and Materials
Plasma physics, electro-optics, and acoustics invest in research laboratories in both the Engineering Building and Van Allen Hall. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics and of a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as solitons and shocks. A plasma physics laboratory is available to support this activity. An electro-optic laser laboratory and an ultrasonic laboratory are designed to conduct graduate research in the areas of optics/acoustics; especially acousto-optics, surface acoustic waves, and nonlinear wave phenomena in ultrasonics. The hybrid microelectronics laboratory is a valuable adjunct to this activity. Topics of interest include acousto-optics, ultrasonic scattering, parametric phenomena, electro-optic signal processing, and SAW devices.

Computer Systems
Research emphasis is directed toward highly reliable and distributed computing. Areas of interest include microcomputer computing, control and distributed systems, coding, VLSI design, and non-standard computer systems. This work is supported by the availability of a computer network, mini computer facilities, and VLSI design software. Current projects include validation of ultra-reliable computing systems, design of highly survivable computing systems, fault detection in modular systems, control and design of error-tolerant, very large scale integrated circuits. Close contact with the Department of Computer Science are maintained.

Signal and Image-Processing
Cardiovascular signal and image processing, signal processing associated with speech and hearing, estimation theory, and adaptive signal processing currently constitute the area. Collaborative efforts include the departments of biomedical engineering, physics, and the College of Medicine. A digital signal processing laboratory and a candidate for imaging systems and signal processing laboratory, the latter located at the cardiovascular center in the University Hospital, are available to support this research. Recent problems include image processing, detection of cardiac motion, recognition and spectral analysis of speech, detection of E.E.G. edge detection, array signal processing with applications in astrophysics, and development of hardware and software techniques for the acquisition and processing of images in polar coordinates.

Stochastic and Computer-Based Control Systems
Current research emphasizes optimal control, learning and adaptive control, self-repairing systems, digital control, and robotics. Work is in being done in estimation, identification, and control of linear and non-linear dynamic systems. A model-control system research laboratory supports this effort. Optimal topics include applications of stochastic processes to problems in control and communication systems such as spectral estimation, identification, adaptive filtering and control for stochastic dynamical systems.

Master of Science
There are two M.S. degree options: an M.S. with thesis and an M.S. without thesis. The thesis option requires 30 semester hours of course work, including at least 12 semester hours from an approved list of courses in electrical and computer engineering. The non-thesis option requires 36 semester hours of course work, with a minimum of 11 semester hours from an approved list of courses in electrical and computer engineering. The M.S. semester-hour requirements do not include courses required for electrical engineering undergraduates. With thesis, up to eight semester hours of the 36 semester hours may be research credit. At least six semester hours of credit must be earned in 55.199 Research in Electrical and Computer Engineering, M.S. Thesis by students in the thesis option. Without thesis, a total of not more than 3 semester hours of independent study credit may be earned. The candidate for the master's degree in electrical and computer engineering 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 these candidates must consist of an oral defense of the thesis. At the time of graduation, the candidate for the master's degree must have acquired a cumulative grade-point average of 3.00 or higher.

Doctor of Philosophy
Requirements are:
Selection of a program adviser and filing of a tentative plan of study with the program during the first year.
At least 72 semester hours of credit in a coherent program acceptable to the adviser and approved by Ph.D. graduate
Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

Electrical and computer engineering provides core instruction for all college of systems, electrical circuits, and electronics. A key part of this core teaching responsibility lies in providing the students of the college with their first experience with engineering laboratory instrumentation. The electronics laboratory facilities are equipped with oscilloscopes, signal generators, analog and digital breadboarding equipment, and a variety of measuring instruments.

Required and Elective Course Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories plus special laboratories for micromachines, microcomputers, and construction of hybrid solid-state devices.

Graduate Facilities and Laboratories

The department has excellent computing facilities supported by two VAX 750 systems with large RAM and disc storage, five Apollo work stations—two of which are color, a PDP 11/74, a VAX 720 system, and several Macintosh personal computers. Over thirty dymanagraphic and graphics terminals (including high resolution smart color terminals) are available for accessing departmental, college and University computers. Several laser printers and two electrostatic plotters are available for production of high quality hard copy.

Courses

Special Courses

5500 Cooperative Education Training Assignments: Electrical Engineering 4 s.h.

Electrical engineering students participating in the Cooperative Education Program register in this course during work assignment periods, receive guidance in preparation for the assignment, and are supervised by the college of engineering's cooperative education office.

5545 Principles of Electrical Engineering Design 1 s.h.

Design problems in electrical engineering with emphasis on students' understanding and application of circuit analysis, advanced electronics, and application of computer software.

5565 Principles of Electrical Engineering Design 2 s.h.

Design problems requiring integration of subject matter from other required ECE courses. Prerequisite: ECE 5545. Cospecifics: ECE 6565, 6590, and 8545.

5575 Principles of Electrical Engineering Design 3 s.h.

Final design course. Individual or group project of student choice. Requires demonstration of the completed project and a formal engineering report. Prerequisite: Senior standing. Cospecific: ECE 5590.

5590 Professional Internship Electrical Engineering 4 s.h.

Practical work experience in electrical engineering procedures or related functions, and internship under experienced engineers. May be repeated. Prerequisite: Senior standing.

5598 Independent Investigation: Electrical Engineering 1-9 s.h.

Individual projects for electrical engineering students such as a laboratory engineering design project, analysis and experimentation on an engineering project, computer software development, research, etc. Prerequisite: Consent of a supervising faculty mentor.

Digital Systems and Computers

5521 Introduction to Computers in Electrical Engineering 2 s.h.

Introduces students to the digital domain. Fundamental computer systems and computer programming. Emphasis on assembly language programming, applications of computers in engineering practice. Lab arranged. Prerequisites: 5590 and 5598.

5522 Introduction to Digital Design 2 s.h.

Modern design and analysis of digital switching circuits, combinational logic, sequential circuits and state machines, introducing both structural and behavior, introduction to computer-based design tools. Lab arranged. Prerequisites: 5590 and 5598.

5591 Switching Theory 3 s.h.

Introduction to digital circuits, computer logic, theory, circuit analysis, logic design techniques, and synthesis methods. Prerequisites: 5522 or 5523.

5592 Introduction to Microprocessors 3 s.h.

Operation and design of microprocessors, data processing, instruction set, microprocessor-based systems, architecture, assembly language programming, introductory applications with computers. prerequisites: 5590 and 5598. Lab arranged. Prerequisites: 5590 and 5598.

5593 Computer Organization 3 s.h.

Introduction to computer organization and microprogramming, including microprocessors, program control, microprogramming, and microcomputer interfacing with applications, interrupt systems, and real-time operating systems. Lab arranged. Prerequisites: 5590 and 5598.

5594 Computer Communication Systems 3 s.h.

Overview of data communication including protocols, channel coding, error detection and correction, and line control, with emphasis on physical layer communications. Lab arranged. Prerequisites: 5590 and 5598.

5595 Microcomputer-Based Systems 3 s.h.

Design of microcomputer-based systems (microprocessor applications), inputs and outputs, computer interfacing, and applications in sensor systems and control. Prerequisites: 5590 and 5598.

5596 Fault Tolerant Computing 3 s.h.

Logic devices for fault tolerant design in combinational and sequential circuits. Basic design techniques for bipolar, silicon gate, and CMOS fabrication processes. Prerequisites: 5565 and 5598.

5597 Advanced Switching Theory 3 s.h.

Advanced study of switching circuits and computer logic design techniques and design of programmable logic circuits. Prerequisites: ECE 5590 and 5598.

Financial Aid

A number of fellowships, traineeships, scholarshipships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.
Controls
5.34-4 Control Systems
Introduction to linear control system theory: transfer functions, frequency response analysis, time-domain analysis, stability and feedback. Realization of control systems, design and implementation.
Prerequisites: 5.33 and 5.34.

5.34-5 Electromechanical Systems
Introduction to electromechanical systems: linear and nonlinear systems, control of mechanical systems, and control of electrical systems. Prerequisites: 5.32 and 5.34.

5.34-6 Communication Systems
Introduction to communication systems: transmission of information, communication systems, digital communication systems, and network systems. Prerequisites: 5.32 and 5.34.

5.34-7 Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-5 and 5.34.

5.34-8 Power Systems Analysis
Advanced topics in power systems: network analysis, power system stability, and power system control. Prerequisites: 5.34-5 and 5.34.

5.34-9 Advanced Control Theory
Non-linear control systems: stability, Lyapunov analysis, adaptive control, and robust control. Prerequisites: 5.34-5 and 5.34.

5.34-10 Random Processes in Control and Communications
Basic concepts of probability and statistics: random variables, probability distributions, and stochastic processes. Prerequisites: 5.32 and 5.34.

5.34-11 Computer-Based Control Systems
Introduction to computer-based control systems: design and implementation of control systems using digital signal processing and microcomputers. Prerequisites: 5.34-6 and 5.34.

5.34-12 Advanced Digital Signal Processing
Advanced topics in digital signal processing: fast Fourier transforms, spectral analysis, and adaptive filtering. Prerequisites: 5.32 and 5.34.

5.34-13 Theory of Adaptive Systems
Adaptive systems: theory and applications. Prerequisites: 5.32 and 5.34.

5.34-14 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-15 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-16 Digital Control Systems
Introduction to digital control systems: design and implementation of digital control systems using microcomputers. Prerequisites: 5.32 and 5.34.

5.34-17 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-18 Introduction to Artificial Intelligence
Introduction to artificial intelligence: machine learning, neural networks, and expert systems. Prerequisites: 5.34-6 and 5.34.

5.34-19 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-20 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-21 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-22 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-23 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-24 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-25 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-26 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-27 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-28 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-29 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-30 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-31 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-32 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-33 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-34 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-35 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-36 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-37 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-38 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-39 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-40 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-41 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-42 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-43 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-44 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-45 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-46 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-47 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-48 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-49 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-50 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-51 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.

5.34-52 Advanced Control Systems Design
Advanced topics in control systems design: state-space analysis, design, and implementation. Prerequisites: 5.34-6 and 5.34.

5.34-53 Introduction to Robotics
Introduction to robotics: kinematics, dynamics, and control of robotic systems. Prerequisites: 5.34-6 and 5.34.

5.34-54 Advanced Control Theory
Advanced topics in control theory: nonlinear control systems, robust control, and adaptive control. Prerequisites: 5.34-5 and 5.34.

5.34-55 Wavelets and Neural Networks
Introduction to wavelets and neural networks: applications in signal processing and pattern recognition. Prerequisites: 5.34-6 and 5.34.

5.34-56 Control Systems Applications
Applications of control systems in various fields: power systems, aerospace, and biomedical engineering. Prerequisites: 5.34-5 and 5.34.
Joint Program with Urban and Regional Planning

A cooperative program between Engineering and the Urban and Regional Planning Program is available for students who are interested in technically oriented positions in the public sector. These positions usually require a blend of civil and industrial engineering and policy analysis courses. Laurels of positions for which a background of this type is advantageous are employed by public sector agencies, utilities, economic development groups, land developers, public works departments, or corporate long-range planning departments. For more information see "Urban and Regional Planning" in the "Liberal Arts" section of the Catalog; also see the earlier section titled "Combined B.S. in Engineering-M.S. Planning Degree Program."

Engineering

Chair: James W. Neely
Professors: James G. Andrus, Kristina B. Chadwick, Adrianna Kozak, J. Richard Stover
Assistant professors: Barbara Davis, James W. Neely

Degree offered: B.S.E. without designation or a major.

The increasing emphasis on interdisciplinary and nontraditional career objectives in engineering emphasizes the desirability of having available a degree program that combines a strong background in engineering fundamentals with the flexibility of choosing a major objective that can be tailored to meet specific educational needs of individual students. The primary objective of the engineering program is to provide such an option for students whose goals cannot be achieved within the framework of the designated degree programs.

The engineering program provides the opportunity for students to develop an individually tailored course of study. However, a proper balance between breadth and depth must be maintained in order for a student to progress to fulfill a well-balanced education. To accomplish this, the engineering curriculum contains a sufficient number of core courses to guarantee an excellent background in engineering fundamentals. The remainder of the program consists of a guided elective sequence.

The major portion of the elective program, scheduled for the final three semesters, build on background acquired in the core courses. In consultation with an adviser, the student's elective sequence is planned to achieve a coordinated program that satisfies the major objectives of the student. The sequence is selected not only by the student's major field of study but also by a program review committee. The committee is responsible for monitoring the progress of all students in the program and offering suggestions and advice as required.

Curriculum

Sophomore Year

First Semester
22M:41 Differential Equations for Engineers 3 s.h.
57:16 Thermodynamics I 4 s.h.
57:12 Introduction to Electrical Science 3 s.h.
57:15 Materials Science 3 s.h.
57:10 Dynamics 3 s.h.
Total 16 s.h.

Second Semester
22M:42 Vector Calculus for Engineers 3 s.h.
57:12 Linear System Analysis 3 s.h.
57:19 Mechanics of Deformable Bodies 3 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.
29:12 Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year

First Semester
22S:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
29:82 Intermediate Engineering Physics II 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
57:21 Principles of Design I 3 s.h.
*Humanities or social science elective 5 s.h.
Total 16 s.h.

Second Semester
29:83 Modern Physics 3 s.h.
57:22 Principles of Design II 3 s.h.
57:14 Engineering Economy 3 s.h.
Technical elective 3 s.h.
*Humanities or social science elective 4 s.h.
Total 16 s.h.

Senior Year

First Semester
Design course 3 s.h.
*Technical electives 3 s.h.
*Humanities or social science elective 3 s.h.
Total 18 s.h.

Second Semester
Design course 3 s.h.
Technical electives 3 s.h.
*Humanities or social science elective 3 s.h.
Total 9 s.h.
*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Industrial and Management Engineering

Chair: James J. Bick
Professors: James H. Buck, John M. Litzinger, J. Richard Stover
Associate professors: J. Wayne Degen, Gary W. Fleeter
Assistant professor emeritus Edward M. Misch
Assistant professors: Vassilis Karthavych, Attila Kozak
Instructors: Larry D. Beinhauer, Allan W. Gervais

Degrees offered: B.S.E., M.S., Ph.D.

Industrial and management engineering is concerned with the analysis, design, and implementation of systems involving the optimal use of resources—human, material, energy, information, and financial. The systems involved may range from small subsystems to extremely large systems. In
order to accomplish these varied activities, the industrial and management engineer is skilled in mathematics, physical sciences, management, and human relations, as well as in computer systems, economics, optimization, human behavior, and systems analysis and design. Both the undergraduate program in industrial engineering and the graduate program in industrial and management engineering are designed to provide courses in these areas, while offering the student an opportunity to specialize selectively in an area of choice.

The industrial and management engineer has many opportunities for employment and service in industrial, governmental, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. The industrial and management engineer may hold a position as an advisor to management or may participate directly in management decisions. Representative jobs include industrial engineer, systems analyst, quality engineer, operations research analyst, internal consultant, human factors engineer, supervisor, or manager. The industrial and management engineer may be employed by a manufacturing firm, a government agency, or a service organization such as an airline, bank, or hospital.

Undergraduate Program

The curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, physical sciences, social sciences, and humanities. Advanced courses include production planning, production control, production management, production operations research, reliability, human factors engineering, and information systems.

Curriculum

Sophomore Year

First Semester

57-10 Dynamics 3 a.h.
67-11 Introduction to Electrical Science 3 a.h.
57-14 Engineering Economy 3 a.h.
57-12 Materials Science 3 a.h.

Second Semester

52-12 Linear Systems Analysis 3 a.h.
57-16 Thermodynamics I 4 a.h.
22M-42 Vector Calculus for Engineers 3 a.h.
31-5 General Psychology 3 a.h.
39-5 Intermediate Engineering Physics I 3 a.h.

Total 17 a.h.

Junior Year

First Semester

56-90 Professional Seminar: Industrial Engineering 0 a.h.
56-01 Manufacturing Processes 3 a.h.
57-21 Principles of Design I 3 a.h.
225-39 Probability and Statistics for Engineering and Management Sciences 3 a.h.
225-20 Intermediate Engineering Physics II 3 a.h.
56-02 Human Factors Engineering ***Economics elective 3 a.h.

Total 18 a.h.

Second Semester

56-90 Professional Seminar: Industrial Engineering 0 a.h.
56-01 Manufacturing Systems 3 a.h.
56-10 Design of Work Methods 3 a.h.
56-06 Production Systems 3 a.h.
57-18 Principles of Electromechanical Instrumentation 4 a.h.
57-22 Principles of Design II 3 a.h.

Total 16 a.h.

Senior Year

First Semester

56-91 Professional Seminar: Industrial Engineering 0 a.h.
56-100 Information Systems Design 3 a.h.
50-35 Psychology in Management 3 a.h.
56-01 Human Factors Electives 1 a.h.
***Electives 6 a.h.

Total 15 a.h.

Second Semester

56-91 Professional Seminar: Industrial Engineering 0 a.h.
56-100 Operations Management Design 3 a.h.
56-16 Quality Control and Improvement 3 a.h.
56-173 Statistical Operatings Research 3 a.h.
***Technical electives 6 a.h.

Total 16 a.h.

Graduate Programs

Concurrent programs in industrial and management engineering are tailored to meet the needs of the individual. Each student's program of study is based on his or her background, career objectives, and sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

There are five principal areas of academic focus in the graduate program of industrial and management engineering: manufacturing, human factors engineering, management, information and computer systems, and computer-aided design. There are also research and applied statistics. Manufacturing courses, offered by the 30 series, delve into the selection of appropriate manufacturing materials, planning of processing operations, devising of control strategies, and the design of manufacturing systems. Contemporary topics in computer-aided planning and design as well as computer-controlled manufacturing are covered.

Human factors studies concentrate on applying the psychological, physiological, and sociological sciences to problems in managing and servicing systems. These programs consider the job and the organization to the people who perform those jobs within the organization as well as managing and motivating people. Courses in the 40 series cover these topics.

Information and management engineering studies concentrate on computer-aided design, computer-aided manufacturing, computer systems, software design, administration, and engineering economics, as covered by courses in the 50 series. The quality and production control area consists of facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series.

Studies in operations research and applied statistics concentrate on mathematical, statistical, and computer sciences for modeling, analyzing, and optimizing various technologies and processes.
include mathematical programming, statistical optimization, simulation analysis, and digital systems simulation. Courses in the 70 series cover these topics.

Many graduate students tend to focus on one of these specialty areas, while others discriminate their studies over two or even all five areas.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research consists of feasible manufacturing systems, design, optimum control of processing paths, adaptive manufacturing control, parametric robotic control, and automatic pattern recognition of parts. Current research in human factors engineering economics consists of investigating the effects of visual and auditory information on human information processing, performance time statistics with cognitive tasks, and the effect of aging on human performance. Other ergonomic research is directed to use of digital simulation to solve human work load problems, industrial inspection, computer-aided human problem solving, and techniques of ergonomic data collection and analysis.

Some current research in information and engineering management consists of information economics, health risk assessment for medical resource allocation, economics of parallel processing, entrepreneurial government, restructuring computer systems, management, methods of identifying accident causes through incidence data, strategic management, and economic risk analysis. Quality and production control research is currently focused on computer-aided layout and scheduling, material handling systems, location and allocation of automatic inspection, on-line expert systems, and the use of subjective interval record accuracy-assurance procedures.

Ongoing research in operations research and artificial intelligence is aimed at optimization, expert systems in scheduling and dispatching, simulation and random number generation, and the development of programming techniques for discriminate classification problems. Other research is directed to extending the capabilities of computer graphics.

Master of Science

Two M.S. programs are available; a thesis and a non-thesis program. Students completing the non-thesis M.S. program must complete 39 semester hours of course work in 100- and 200-level courses, including at least 8 semester hours of research. Students who elect the thesis option must complete a minimum of 30 semester hours of course work at the 100- or 200-level, including at least 6 semester hours at the 200-level or at the 100-level with the designation "advanced" or "contemporary topics" in the course title. A tentative plan of study for each student is determined through consultation with his or her advisor; the final plan of study is reviewed by the student's advisory committee and approved by the industrial and management engineering program chair and the Graduate College dean.

Entering students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find psychology and engineering economics to be useful preparation. Compensation for course work may be required for students with nonengineering backgrounds.

The student is required to maintain a minimum grade-point average of 3.0 on all graduate course work (both 100- and 200-level courses) at The University of Iowa in order to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. The examination will consist of both written and oral parts. The examination will explore the student's course preparation and/or an appropriate individual investigation.

Doctor of Philosophy

Typically, Ph.D. programs in industrial and management engineering require at least 72 hours of study, including research for the dissertation. Admission to the Ph.D. program requires that the applicant have completed at least two years of study beyond the baccalaureate degree. The Ph.D. program is designed to provide a broad and deep understanding of the field of study in the academic setting and the opportunity to contribute to significant research. The student must complete a comprehensive examination, which includes both written and oral parts. This examination will usually include the presentation of a dissertation proposal, so that the advisory committee can evaluate the student's academic preparation in light of the research to be performed. Upon successfully completing this examination, the student is accepted as a candidate for the Ph.D. and normally has to complete and defend the dissertation.

Admission

Students with an M.S. objective may be admitted from an ABET accredited baccalaureate curriculum in any engineering discipline or in the mathematical or physical sciences with a minimum grade-point average of 3.25 and an acceptable score on the Graduate Record Examination (GRE) Aptitude Test (typically, at least 600 verbal, 550 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may also be admitted under conditional admission with a higher grade-point average and lower GRE Aptitude Test scores. Students from business or social science programs who have adequate mathematical preparation also may be considered for regular or conditional admission. The student on conditional status must achieve regular status within two semesters of registration by attaining a grade-point average of at least 3.0 and gaining regular acceptance by the industrial and management engineering program faculty. Otherwise, the student will be dismissed. Admission may be limited by the number of faculty and other available resources. Students with a Ph.D. objective may be admitted from an ABET accredited baccalaureate or a post-baccalaureate curriculum in any engineering discipline or in the mathematical and physical sciences with a minimum grade-point average of 3.0 and an acceptable GRE Aptitude Test score (typically, at least 500 verbal, 500 quantitative). Applicants from outside the United States must have an equivalent basis for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined on an individual basis. Students with a Ph.D. objective and a B.S. degree or an M.S. degree without thesis usually are first admitted to the Ph.D. program. All admission procedures must be approved by the faculty as a committee of the whole.

Financial Aid

A number of one-quarter-time and one-half-time graduate assistantships are available. Awards are based on the student's academic record and an assessment of the student's potential contribution to the research and teaching goals of the department. These awards also may qualify for higher stipend instructor positions. Students should write to the chair of the industrial and management engineering department for further information.

Special Facilities and Laboratories

Engineering Core

For information about laboratories affiliated with core courses coordinated by other departments, see this subsection for each of the other engineering departments.

Required and Elective Course Requirements

Industrial and management engineering occupies the north wing of the fourth floor
Fluid Mechanics
The graduate program in fluid mechanics is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. Emphasis is on the elucidation of fundamental principles and techniques of solving problems in the various fields of fluid dynamics applications. In addition to physical modeling, strong emphasis is given to the use of digital computers, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data.

Thermal Science and Systems
The graduate program in thermal science and systems is designed to prepare students for careers in industry, teaching, or government. Emphasis is on the fundamentals of thermodynamics and heat transfer and associated analytical and experimental methods used in energy conversion systems. Areas of concentration include: fluid dynamics, numerical heat transfer, solar energy systems and thermodynamics, combustion, radiation, and convective heat transfer.

Mechanical Systems
The graduate program in mechanical systems is designed to prepare students who want to pursue careers in high-level applied research, advanced system analysis, and design or teaching. Emphasis is placed on fundamental principles, techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include machine dynamics, computer-aided design, optimal design, structural optimization, software development, control systems, and materials behavior (fatigue, fracture, mechanics, etc.).

Biomechanics and Biomaterials
The graduate program in biomechanics is designed to provide the student with a strong background in this interdisciplinary subject. The educational experience is intended for those who wish to pursue careers in high-level applied research in bioengineering and medical and clinical engineering. Emphasis is placed on the fundamental principles and experimental techniques used in analysis and design of biomaterial systems. Areas of concentration include traumatic biomechanics of the central nervous system, the biomechanics of the spine, biomechanics of the lower and upper extremities, cardiovascular biomechanics, biomedical systems analysis, optimization as applied to biomechanics, biomedical image analysis, and health care delivery.

Master of Science
The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or synthesis program. A thesis program may include 5 semester hours in thesis research. After admission to a graduate degree program, the student should visit with the mechanical engineering faculty and find an academic advisor during the first semester. All graduate students in residence are required to attend 36110, Graduate Seminar: Mechanical Engineering each semester. To earn the M.S. degree, students are required to attain a minimum grade-point average of 3.0 on a minimum of 90 semester hours of graduate work and to be successful in the final examination administered by their committee. The requirements for the M.S. degree may be completed within a calendar year for a full-time student. However, students with assistantship duties or other constraints may require between one and two calendar years to complete the degree.

Doctor of Philosophy
Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hour of credit—including research for the dissertation—beyond the baccalaureate degree. All graduate students are required to attend 36110 Graduate Seminar: Mechanical Engineering. There is no foreign language requirement. Part-time Ph.D. study is discouraged and students who cannot study full-time on campus will rarely be admitted to the Ph.D. program. One of the Ph.D. degree requirements is a minimum grade-point average of 3.52 on all graduate work done at The University of Iowa. All students in the doctoral program are required to take the qualifying examination during their first year in the program completing the specified course work in the plan of study and upon the advisor's recommendation, the student is admitted to the comprehensive examination given by the student's committee. The comprehensive examination must be completed within 28 months from the date of starting course work for the Ph.D. degree. During this without oral examination, the student is examined over all elementary, intermediate, and advanced courses relevant to his or her degree program. The oral examination is taken in the student's preparation for the proposed dissertation research project in addition to the student's course work. The oral examination generally is taken within one month after the written examination. Having satisfactorily completed the comprehensive examination, the student normally has only to complete and successfully defend the dissertation. The doctoral dissertation is required as partial fulfillment of the Doctor of Philosophy degree. Requirements for the Ph.D. degree generally can be completed in three to four years beyond a master's degree, depending on holding assistantship appointments in the department.
Admission

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences with a minimum grade-point average of 2.70 are eligible to be considered for admission to the Master of Science degree program in mechanical engineering. Reference letters and scores on the Graduate Record Examination (GRE) Aptitude Test are also taken into account in admission decisions.

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering curriculum or a curriculum in the mathematical and physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.4. Reference letters, scores on the GRE Aptitude Test, student research interests, previous graduate study grade-point average, and other factors are considered in making the decision to admit a student. Students with a Ph.D. objective who earn a baccalaureate degree first must be admitted to the M.S. program.

Admission as a Ph.D. student is conditional until the student successfully completes a qualifying examination that is administered by his or her committee during the second semester of studies after initiation of course work for the Ph.D. degree. Students graduating with the M.S. degree from the mechanical engineering department at the University of Iowa may request that the M.S. final examination also include the Ph.D. qualifying examination. The decision on whether the student's performance in this examination is adequate for admission as a Ph.D. student is made by the student's committee and the department chair. After the Ph.D. committee examination, a Ph.D. student is selected by the student and has her/his adviser approved by the department chair and the graduate college. The student's committee must include at least five faculty members, of whom at least one must be from outside the Department of Mechanical Engineering.

Financial Aid

Financial support is available to M.S. as well as Ph.D. students. Students are required to apply to the Iowa State University Scholarship Office for the Department of Mechanical Engineering, the Herman B. Wells Library, the Center for Materials Research, the Center for Computer-Aided Design, and the College of Medicine. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointment are competitive and are based on the student's potential contribution to the research and teaching goals of the program. Students who fulfill their assistantship responsibilities adequately and perform to make satisfactory progress toward their degree objectives qualify for the awarding of new assistantships. Advanced doctoral students also may qualify for higher-stipend instructor positions. All applications for financial support should be sent directly to the chair of the Department of Mechanical Engineering.

For more details on the graduate program in mechanical engineering, reference may be made to the Graduate Handbook for the Department of Mechanical Engineering, available in the department office.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The laboratories in fluid flows and transport processes contain a small wind tunnel; a water flume; a water table; four water channels with porous media; three jet air tables; variable air, water, and oil flow devices; and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

There is a laboratory for engineering graphics practice.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the subsection for each department.

Required and Elective Course Laboratories

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary instrumentation, signal processing, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering projects provides for either group or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The solar energy and heat transfer laboratory is equipped with a data acquisition system to process data on-line on computer. Experiments in solar energy applications and materials transfer measurements are made in this laboratory.

Graduate Facilities and Laboratories

The fluid mechanics courses are closely connected with the research and consulting activities of the Iowa Institute of Hydraulic Research, particularly in fluid mechanics, hydromatic engineering, flow instrumentation, and some aspects of thermal sciences related to diffusion and dispersion of waste heat to water.

In the thermal engineering laboratories, research is conducted in the solar energy, thermal radiation, combustion, and heat transfer laboratories in the Engineering Building.

The mechanical engineering systems laboratories are equipped to give students a wide variety of experience in using modern methods of measurement and analysis, including computers, a variety of strain gauges, a photo-electric laboratory, and other conversion instrumentation.

The biomechanics laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Equipment includes a Lafe Lotus Doppler Anemometer system for fluid velocity and turbulence measurements, a mock circulation system, a Brodax viscometer pressure transducers, and miscellaneous measuring instruments.

Courses

Special Courses

18099 Cooperative Education Training Assignment: Mechanical Engineering 1.5 b.

Mechanical engineering student participating in the Cooperative Education Program register in this course each semester for which enrollment provides a student semester cooperative education experience. Emphasis is on career counseling, personal records, planning, and preparation for the preceptor interview.

5808 Experimental Engineering 3.0 b.

5806 Professional Seminar: Mechanical Engineering 0.5 b.
A seminar for professional students in mechanical engineering. Emphasis is on the professional responsibilities of engineers and graduate students in the profession. Guest speakers.

5804 Professional Seminar: Mechanical Engineering 0.5 b.
A seminar for professional students in mechanical engineering. Emphasis is on the professional responsibilities of engineers and graduate students in the profession. Guest speakers.

5804 Professional Seminar: Mechanical Engineering 0.5 b.
A seminar for professional students in mechanical engineering. Emphasis is on the professional responsibilities of engineers and graduate students in the profession. Guest speakers.

5804 Professional Seminar: Mechanical Engineering 0.5 b.
A seminar for professional students in mechanical engineering. Emphasis is on the professional responsibilities of engineers and graduate students in the profession. Guest speakers.

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A seminar for professional students in mechanical engineering. Emphasis is on the professional responsibilities of engineers and graduate students in the profession. Guest speakers.
58.125 Advanced Mechanical Design
Advanced topics in mechanical systems design and analysis. Design optimization. Prerequisites: 58.122.

58.125 Computational Methods in Dynamics
Computational methods in simulation and computation of dynamic behavior of mechanical systems. Prerequisites: 58.125 and 58.151.

58.124 Energy Principles in Structural Mechanics
Principles of virtual work, stationary, and minimum potential energy analysis of finite-dimensional systems. Prerequisites: 58.124 and 58.201. Same as 58.154.

58.225 Solid Mechanics II
Plane theory of elasticity: stress around a crack tip; heat conduction. Prerequisites: 58.220. Same as 58.220.

58.207 Theory of Viscelasticity
Linear theory of viscoelasticity; viscoelastic materials. Prerequisites: 58.201 and 58.205.

58.220 Continuum Mechanics and Fluidity
2 a.h.

Biomechanics and Biomaterials
58.170 Composite Materials
Same as 58.177.

58.271 Advanced Biomaterials
Same as 58.270.

Graduate Seminars, Advanced Topics, and Research
58.190 Endings in Mechanical Engineering
2 a.h.

58.195 Controversy Topics in Mechanical Engineering
2 a.h.

58.130 Research: Mechanical Engineering
2 a.h.

58.131 Dissertation
2 a.h.

58.133 Thesis
2 a.h.

58.190 Experimental and/or analytical investigations of an approved topic, leading to partial fulfillment of the requirements for the M.S. degree in mechanical engineering. Prerequisites: grad. standing and consent of advisor.

58.199 Research: Mechanical Engineering
2 a.h.

58.135 Dissertation
2 a.h.
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fifth of its enrollment is in the Graduate College. This unusually 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 funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises all University faculty members in the ranks of assistant professor, associate professor, and professor. A U-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.

Degree Programs

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Master of Comparative Law (M.C.L.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields:

Accounting—M.A.*

African-American World Studies—M.A.*

American Studies—M.A.*, Ph.D.

Anthropology—M.A.*, Ph.D.

Applied Mathematical Sciences—Ph.D.

Art—M.A., M.F.A.

Art History—M.A.*, Ph.D.

Asian Civilization—M.A.

Astronomy—M.S.*

Biochemistry—M.S., Ph.D.

Biology—M.S.*, Ph.D.

Botany—M.S.*, Ph.D.

Business Administration—M.A.*, M.B.A.**, Ph.D.

Chemical and Materials Engineering—M.S., Ph.D.

Chemical Physics—M.S., Ph.D.

Chemistry—M.S.*, Ph.D.

Civil and Environmental Engineering—M.S.*, Ph.D.

Classics—M.A.*, Ph.D.

Communication Studies—M.A.*, Ph.D.

Community Dentistry and Dental Public Health—M.S.

Comparative Law—M.C.L.**

Comparative Literature—M.A.*, Ph.D.

Computer Science—M.S.*, Ph.D.

Criminal Justice and Corrections—M.A.**

Dental Hygiene—M.S.

Economics—M.A.*, Ph.D.


Electrical and Computer Engineering—M.S.*, Ph.D.

Endodontics—M.S.

English—M.A.*, M.F.A., Ph.D.

Finance and Actuarial Sciences—M.S.

French—M.A.*, Ph.D.

Geology—Ph.D.

Geography—M.A.*, Ph.D.

Geophysics—M.S., Ph.D.

German—M.A.*, Ph.D.

Greek—M.A.**

History—M.A.*, Ph.D.

Horse-Breeding and Equine Science—M.S.

Hospital and Health Administration—M.A.*, Ph.D.

Industrial and Management Engineering—M.S.*, Ph.D.

Journalism—M.A.

Latin—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.

Museum Methods—M.A.***

Music—M.A.*, M.F.A., D.M.A., Ph.D.

Neuroscience—Ph.D.

Nursing—M.A.

Nutrition—Ph.D.

Operative Dentistry—M.S.

Oral Pathology—M.S.

Oral and Maxillofacial Surgery—M.S.

Orthodontics—M.S.

Otolaryngology—Head and Neck Surgery—M.S.

Pathology—M.S.

Pediatric Dentistry—M.S.

Periodontology—M.S.

Pharmacology—M.S., Ph.D.

Pharmacy—M.S.*, Ph.D.

Philosophy—M.A.*, Ph.D.

Physical Education—M.A.*, Ph.D.

Physical Therapy—M.A.

Physics—M.S.*, Ph.D.

Physiology and Biophysics—M.S., Ph.D.

Political Science—M.A.*, Ph.D.

Preventive Medicine and Environmental Health—M.S., Ph.D.

Psychology—M.A.*, Ph.D.

Public Affairs—M.A.**

Radiation Biology—M.S., Ph.D.

Renewable Energy Education—M.A.*

Religion—M.A.*, Ph.D.

Removable Prosthodontics—M.S.
Ad Hoc Interdisciplinary Ph.D. Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of ad hoc interdisciplinary Ph.D. degrees. There are no provisions for ad hoc interdisciplinary programs at this time. Students seeking approval for ad hoc interdisciplinary Ph.D. programs must present a proposal to the Graduate College. For further details, see Section X.F. in "Rules and Regulations of the Graduate College" in this section of the Catalog.

Aging Studies Program

The Aging Studies program is a multidisciplinary graduate program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in Aging Studies. For further details, see "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

Applied Mathematical Sciences

The program in Applied Mathematical Sciences is a broad-based interdisciplinary program leading to the Ph.D. degree. Students combine study of theoretical and applied aspects of mathematical science (mathematics, statistics, or computer science) and their application in a science (behavioral, biological, engineering, medical, physical, or social). See "Applied Mathematical Sciences" under "Division of Mathematical Sciences" in the "College of Liberal Arts" section of the Catalog for a list of faculty and a further description of the program.

Center for International and Comparative Studies

The Center for International and Comparative Studies coordinates and supports interdisciplinary international studies at The University of Iowa. Founded as a faculty committee in mid-1961, CIS was recognized by the Board of Regents of Iowa in April 1964 as an academic center. In 1985, CIS was awarded a grant from the U.S. Department of Education to establish a Title VI National Resource Center on International Studies, becoming one of only 11 centers in the nation so recognized. This grant supports a variety of research and instructional activities on selected aspects of international development. As a national resource center, CIS serves the state, the region, and the nation by making available the human and bibliographic resources of the University through public lectures, instructional programs, and research activities.

The center is managed by a half-time director and an executive committee in faculty representing seven interdisciplinary programs: Asian Civilizations, African Studies, Global Studies, International Development, Latin American Studies, Women in Development, and the Project for International Communication Studies. Faculty members and students in these programs are drawn from schools and departments across the University. CIS works closely with the Office of International Education and Services, and both organizations are linked administratively to the University president for educational development and research.

Four of the seven programs in CIS combine research with teaching at the undergraduate instructional programs: African Studies, Asian Civilizations, Latin American Studies, and Global Studies. (for further details, see the appropriate section under "College of Liberal Arts" in the Catalog). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee and the Project for International Communication Services research, plan, teach, and instructional activities. The Center supports international studies by funding more than 60 public lectures and seminars yearly by providing administrative facilities to grantee applicants, and by facilitating office space in the Jefferson Building, where students and faculty meet to hold classes and seminars. CIS cooperates with the Iowa City Foreign Relations Council and other community organizations in providing speakers. CIS receives numerous foreign periodicals and newspapers, which are maintained in a small library in the Jefferson Building. Times a year CIS publishes the International Studies Newsletter, which announces forthcoming events. CIS publishes scholarly papers in several occasional series.

Evolutionary Ecology and Behavior

Program co-chairs: Stephen Hauenschild, Henry Rowland Professor of Biology (Program Director); Robert W. Crooks (Biology); Joseph F. Greenstone (Ecology); and Jane S. Bupp (Biology). Associate professors: Stephen Hauenschild; Charles O. Smidt (Biology); John Johnson (Biology); David Wrenn (Chemistry). Assistant professors: Joanne Cogger (Chemistry); Dana Horton (Biology); Gerolf Robinson (Geography); Sue E. Lue (Biology).

Program and Facilities

The departments of Biology and Botany offer programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and behavior, emphasizing adaptation, community ecology, and the genetic basis of adaptation.

Particular strengths of the program are behavioral and quantitative genetics, quantitative methods in ecology and behavioral ecology, plant-animal interactions, population biology, and tropical biology. There is real and strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, gene action, and genetic interactions, and genetic covariance of neurophysiological, behavioral, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits, interactions between species, and population dynamics.

Opportunities for field research are provided locally by the Macoupin Nature Recreation Area just outside Iowa City, with larger, temperate hardwood forests, and old fields. The Iowa Lakeshore Laboratory on Lake Okoboji, with year round laboratory facilities, fishing, and a research vessel, provides the opportunity to study undisturbed prairie, marshland, and lake ecosystems. Field work by faculty and students also takes place worldwide: Recent studies have been conducted in East Africa, England, the Caribbean, Brazil, Mexico, Central America, the Great Smoky Mountains, the Mohave Desert, the American Rocky Mountains, and the Florida Keys. The Smithsonian Institution Laboratory on Barro Colorado Island in Panama and the Parque Nacional de Santa Rosa in Costa Rica are among sites used by staff and students. The University of Iowa is a member of the Organization for Tropical Studies and regularly sends students to the Tropical Biology Course in Costa Rica. In addition, the US Fish and Wildlife Service with the University of the Andes in Merida, Venezuela.

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Joint Programs within the Graduate College

Various joint programs have been developed whereby students can simultaneously work toward two graduate degrees. Consult the appropriate sections of this Catalog or further information. Established joint programs include:

- Business Administration/Library and Information Science
- Economics/Urban and Regional Planning
- Hospital and Health Administration/Urban and Regional Planning
- Social Work/Urban and Regional Planning
- Preventive Medicine and Environmental Health/Urban and Regional Planning

Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See “Medical Scientist Training Program” in the “College of Medicine” section of the Catalog.

Neuroscience Program

The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education and research training aimed at understanding the structure, function, and development of the nervous system and its role in behavior. See “Neuroscience Program” in the “College of Medicine” section of the Catalog.

Transportation Studies

The program in Transportation Studies is an interdisciplinary, nondegree-granting program dealing with the planning, analysis, and operation of transportation systems. Students participate in the program in conjunction with work toward a graduate degree in Civil and Environmental Engineering, Geography, or Urban and Regional Planning. When the graduate degree is awarded, an entry is made on the student’s transcript certifying completion of the Transportation Studies Program. For further details, see “Transportation Studies” in the “College of Liberal Arts” section of the Catalog.

Urban and Regional Planning

The graduate program in urban and regional planning is a professional master’s program that prepares students for widely varied positions in government and the private sector. The program has a strong policy orientation that enables its graduates to understand the factors affecting a particular urban or regional problem and to develop workable solutions. Students may choose to specialize in transportation, environmental quality, land use, housing, and several other areas. For further details, see “Urban and Regional Planning” in the “College of Liberal Arts” section of the Catalog.

Research Resources

The many and diverse research activities of the University are centrally administered by the Office of the Vice-President for Educational Development and Research, which has an interlocking relationship with the Graduate College. Further information is available in “Research Activities” in the “Special Resources at Iowa” section of the Catalog.

Financial Assistance

Approximately half of the University’s graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in “Section VI. Graduate Appointments” in “Rules and Regulations of the Graduate College.” These are the primary sources of assistance:

- Teaching and Research Assistantships

Available in most departments; stipends typically range between $7,200 and $8,500 for half-time assistantships; assistantships are eligible for tuition scholarships; nonresident assistantships (non-quarter time or more) tuition and fees are reduced to resident rates.

University Teaching-Research Fellowships

For first-year graduate students entering doctoral programs; typical stipends are $8,500 a year on a year-round basis, with all tuition paid; for as long as four years; recipients have teaching and research assignments, but may carry full course loads at the same time; one year out of four and all summers, recipients have full time to pursue studies, research, or writing.

The University of Iowa Fellowship Program

For first-year graduate students entering doctoral programs; typical stipends are $11,500 a year on a year-round basis, with all tuition paid, for as long as four years; departmental participation ensures that the recipient will be involved in teaching, research, and departmental affairs; two years out of four and all summers, recipients have full time to pursue studies, research, or writing.
Scholarships
Scholarships provide up to full tuition and fees.

Graduate Fellowships
Graduate Fellowships provide Mi,450 for the academic year.

Other Sources
University and National Direct student loans are available through the University's 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 Educational Development and Research maintains a library of information on public and private agencies that provide funds for research and graduate study. A considerable amount of 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 having a graduate degree program. The Senate's primary purpose is to serve the interests of the student body in matters affecting its welfare. The Senate advises the dean of the Graduate College on matters pertaining to the Graduate College.

Rules and Regulations of the Graduate College
The Academic Program

Section 1. Admission to the Graduate College

A. Application Procedure

All students seeking to register for the first time in the Graduate College of The University of Iowa must secure a formal admission statement from the director of admissions. Applicants may obtain the proper forms from the director of admissions. The University of Iowa, Iowa City, Iowa 52242.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions by the designated deadline prior to the session in which admission is expected. Admission applications must arrive no later than July 15 for fall semester enrollment or May 1 for summer session enrollment. These are general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination

All applicants prior to consideration for admission must take the General (Appliance) Test or the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending upon departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken before the end of an applicant's first session of enrollment. The test is given several times a year at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on the test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject (Advanced) Tests are available require these in addition to the General (Appliance) Test. Inquiries about the General (Appliance) Test may be directed to University Guidance and Examination Service, Room 301, Old Campus, University of Iowa, Iowa City, Iowa 52242. Inquiries about the Subject (Advanced) Test should be addressed to the executive or departmental officer in which the applicant is interested.

C. English for Foreign Students

Prior to consideration for admission, foreign students whose native language is other than English must take and pass the TOEFL (Test of English as a Foreign Language) unless they have received a degree from an accredited college or university in the United States, the United Kingdom (except Canada), Australia, or New Zealand. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to the director, TOEFL, Educational Testing Service, Princeton, New Jersey 08541.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a grade lower than the minimum established by the Graduate College, must take the TOEFL, examination, and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students barely passing the TOEFL. Individual departments may require such students to take and pass a course at The University of Iowa in English designed especially for foreign students.

D. Early Admission

A student who is within four semester hours of having satisfied all the requirements for the Bachelor's degree at The University of Iowa or any other accredited college may be given provisional admittance.

E. Candidacy

Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See "Section V, Master's Degree." "Section XI, Two-Year Degrees," and "Section XII, Doctor's Degrees.")

F. Declarations of Major and Degree

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limit on the number of applicants registered as "special students." (See definition of "special status" in next paragraph.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To initiate such action the student must file a change of major or degree status in the Office of Admissions.

G. Status upon Admission

All students upon admission fall into one of the following groups:

1. Regular—Students who have met the minimum requirements for admission and who have been accepted by a department, or interdepartmental degree program, for work leading to a graduate degree or certificate or professional (or personal) improvement.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are required by the department to demonstrate their ability to do graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department, which will assume responsibility for keeping him or her on this basis.

3. Special—Students with a valid bachelor's degree who do not meet the minimum requirements for admission. A student who is planning to change from a baccalaureate to a graduate degree or certificate. Registration as a special student is allowed for only one session or one semester and is limited to a grade-point average of at least 2.5 (3.0 for doctorate) at the University of Iowa. The program is designed especially for working adults who are unable to make regular progress in their first-year graduate studies or who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is allowed for only one semester or one summer session. Before registration for any subsequent session, including another summer session, a special student must file an application and be admitted by a department or program to regular or
J. Readmission
Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the applications for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of application.

Section II. Registration
A. Standard Schedule
Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one semester hour of graduate credit, with registration limited to a total of 18 semester hours. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean. Nine semester hours in the regular semester constitute full-time registration. (Fellows are required to stay at least nine semester hours during a semester as a condition of their appointments.) One-half-time and one-third-time appointees are permitted to register for the maximum 15 semester hours (nine per semester and eight semester hours during the eight-week summer season."

B. Courses Not Included in Total Registration
In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Classes as carrying zero semester hours credit.

C. Changes in Announced Credit
Graduate students may not register for more credit in any course than that printed in the Schedule of Classes, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. One-half-time appointees may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.
2. Five-eighths-time appointees may register for not more than 10 semester hours during a semester or five semester hours during the eight-week summer session.
3. Two-thirds- and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.
4. Seven-eighths-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.
5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration
No form of retroactive registration is permitted.

F. Registration for Part of a Session
A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research in which the signed approval of the instructor concerned and the Graduate College dean.

G. Extramural Registration
After admission to a departmental program in the Graduate College, registration for work done off campus is accepted for residence credit under the following circumstances:
1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section II.")
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.
3. Field work as part of a regularly scheduled course or research program.
4. Courses taught off campus by members of the graduate faculty (see "Section IX.")
5. Residence graduate credit from another
L. Dropping of Courses

All graduate students who drop courses after the deadline established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is withdrawn. This restriction may be waived only by the Graduate College dean on the recommendation of the Student Health Director or the Student Counseling Service. If a student withdraws registration after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to register.

Section III. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, enables a doctoral student to take advantage of special resources available on another campus but not available to him or her elsewhere. Special course offerings, research opportunities, special libraries, and library collections.

B. Procedure

1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.

2. After approval by the student's advisor and the faculty member at the host institution, graduate dean at both institutions will be fully informed by the advisor and have the power to approve or disapprove.

3. A CIC Traveling Scholar will be registered at the host university, and fees will be collected through student aid by that institution. The student registers for 099900 CIC Scholar at The University of Iowa.

4. Credit for the work taken will be recorded at the home university.

5. During the additional information should inquire at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. Nondoctoral Students

A student, qualified on a conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, his or her cumulative grade-point average on graduate work does at The University of Iowa falls below 2.5. If
Section VI. Marking System
A. Marks Carrying Graduate Credit
These are A, B, C, and S—satisfactory.
B. Marks Carrying No Graduate Credit
These are D, F, and Incomplete.
C. Audit
It is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor's requirements for class attendance, W is assigned.
D. Incomplete
The grade of I is to be used only when a student's work during a session cannot be completed because of illness, accident, or other circumstances beyond the student's control. In registrations for thesis, research, or independent study, satisfactory/unsatisfactory grades may be applied. (See next paragraph, "F.") Students who receive the mark of I must request that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with F s from the spring semester are exempt from completing the course during the succeeding summer session.
Specific standards for the substitution of student work to the faculty and for the faculty's report on grades to the registrar will be set by the Graduate College Office for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes; removal of an I in this manner is accomplished only through completion of the specific work for which the mark is given.
Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work; U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their type or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for up to one semester and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be made clear and understood by the instructor and student.
F. Grades of S and U
S and U may be used for courses taken by a graduate student outside the major department or interdepartmental degree program provided that the instructor of the course and the student's departmental adviser approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filling a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the third week of a semester or the third day of the second week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to abandon the traditional letter grades described in this section; however, in certain exceptional instances, departments having several areas of concentration involving widely differing types of effort may request the permission of the Graduate College to allow students residing in one area to register in courses in another area without the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory credits will be used as described in the preceding paragraph.

G. Computed Grade-Point Average
This is based only upon graduate work graded A, B, C-, D, and F. (A = 4, B = 3, C = 2, D = 1, F = 0.)

Section VII. Graduate Appointments
A. Scholarships
Scholarships are competitive and are awarded on merit.
1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College at the time of computation grade-point average of at least 3.0; (b) a GRE score of at least above a point to be designated by the Graduate College dean; (c) a satisfactory rate of progress in completing the program for the degree.
2. Fluency will be given to candidates for the doctoral degree.
3. Recommendations for graduate scholarships may be made by the Graduate College to the appropriate department, executive, director, or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. Graduate College Fellowships
Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purpose of the awards is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College dean in consultation with the Graduate College Council.

C. Faculty Research Assistantships
Faculty research assistantships are awarded to qualified graduate students and are for two purposes: to provide research service to professional members of the academic staff and to provide apprentice experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a full-time assistant. Other part-time service is scaled in proportion, and a limited academic liability is permitted (see "Section II.D."). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. Faculty research assistants appointed by the Graduate College pay their own taxes. Graduate appointments beginning in August are usually made by the Graduate College dean upon recommendation of the various departments in March of each year, although applications may be considered at any time. Appointment on the form provided by the Graduate College, and should be renewed upon recommendation by and/or a letter substantiating the student's qualifications.

D. Graduate Assistantships
These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both, a satisfactory rate of progress in completing the program for the degree.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships
Scholarships, fellowships, and research assistantships on the Graduate College budget must be registered in regular students in good standing in the University and hold such appointments. Appointments will be terminated when registration and/or student status is terminated. In no instance may a student be permitted to resign or be dismissed unless an appointment has been approved by the Dean of Admissions.

F. Dismissal of Assistants
A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. Research Associateships and Postdoctoral Fellowships
These provide for independent research. Appointment is made through the Office of the Dean of Graduate Studies, President of Academic Affairs.

H. Credit
No academic credit is allowed for the teaching or research service for which the student receives payment in a graduate or a faculty research assistantship.

I. Loans
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Financial Aid" in the "Learning at Iowa" section of the Catalog.

J. Other Forms of Support
Many departments offer financial assistance in the form of traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the Major Department.

Section VIII. Advanced Programs Offered in the Graduate College
The subject areas in which the Graduate College offers degree programs are listed under "Advanced Degree Programs" at the beginning of the "Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. Application for Degrees
The student must file an application for an anticipated degree with the registrar not later than ten weeks after the start of the semester or quarter in which the degree will be conferred. The student must have the application signed by his or her adviser. Failure to file the application by the deadline will result in postponement of graduation to a subsequent session.

B. Enrollment in Final Session
The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following paragraph. Students who intend to register for the amount in which the degree is to be conferred but are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis according to the practice in various departments. Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive registration described in "Section XXII" if such registration is approved by their Major's candidate who has completed all work except the final examination may register for 0.000 Master's Final Registration at a fee equivalent to the "postcomprehensive registration" if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.
Students completing all requirements (including the final examination and thesis deposits) for a graduate degree while enrolled in the independent study session will receive their degrees in the following academic year without additional registration.

Section X. Master's Degrees

A. Kind of Degree

Master's programs require a minimum of 36 semester hours to lead to the Master of Arts in Teaching degree and not less than 39 semester hours to lead to the master's degrees as approved by the graduate faculty.

B. Plan of Study

The applicant for a master's degree must file a plan of study approved by the advisor and the departmental executive with the Graduate College within the session in which the degree is to be granted and for a date to be established by the Graduate College dean. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also Section IV.D. Departmental Regulations and Permission of Information.)

C. Major and Related Fields

The plan of study shall provide for reasonable concentrations in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. Residence Requirement

Of the minimum of 36 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa, after admission to a departmental program in the Graduate College. Various forms of enrollment may be allowed toward fulfillment of this 24-hour residence requirement (see "Section II. C. Estuarine Registration") in addition to regular on-campus registration. However, all at least eight semester hours on campus are required, except for those departmental programs, which ensure sufficient interaction between the student and the graduate faculty and have received approval from the Graduate College and the appropriate Graduate College for reduction of the on-campus requirement.

E. Reduction of Old Credits

Credits for a master's degree dating back more than 10 years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional college will be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondisciplinary degrees in the Graduate College only when the student is registered in an appropriate kind of degree program.

G. Two Master's Degrees

The granting by this University of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses when one thesis is required for each, and two examinations, with a minimum combined total of 60 semester hours of graduate credit.

H. Master's Degree with Thesis

Not more than nine semester hours of credit for thesis research and writing shall be counted in satisfying the 36-semester-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, complete and in final typed form, must be delivered to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See the Graduate College Thesis Manual.) After approval by the Graduate College and the thesis committee, the copy must be deposited with the Graduate College not later than five days before graduation.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical in the final examination committee. (See "K. Examining Committee.")

I. Master's Degree without Thesis

A master's degree without thesis consisting of at least 30 semester hours of graduate study, and the completion of a combination prescribed by a department and approved by the Graduate Council.

J. Final Examination

The requirements for all master's degrees include a final examination which, at the discretion of the major department, may be written or oral. Such an examination will not duplicate course examinations. It may be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate may not complete the program of study or write a thesis unless the candidate presents such work to the major department for examination and approval.

Upon recommendation of a department, the candidate may substitute for the master's degree a unit of time for research in the candidate's major field or research in some other major field.

The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program. If at least two of whom are from the major department. If the examining committee covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and at his discretion, the Graduate College dean may add a member to 5 such committees.

Section XI. Two-Year Degrees

A. Master of Fine Arts Degree

This degree is awarded for creative work in the visual arts, dramatic art, music, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, photography, acting, producing, stage design, musical performance, composition, instrumentation, poetry, fiction, and translation. Central to the program of study is the creation of a painting, a painting, a musical composition, or an object, approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requirement includes 24 hours of graduate credit, at least 20 of which must qualify for residence credit at this University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately with a minimum combined total of 60 semester hours of graduate credits.

For other requirements see "Section X.B. Plan of Study." "G. Major and Related Fields"; "I. Reduction of Old Credit." "J. Limit on Pre-Graduate College Master's Degree with Thesis;" "J. Final Examination;" and "K. Examining Committee."
The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is combined with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work in August.

For other requirements, see "Section X.B. Plan of Study"; "N. Reduction of Old Credit"; "T. Limit on Professional Courses"; "H. Master's Degree with Thesis"; and "K. Examining Committee."  

Section XII. Doctor's Degrees  
A. Character of Degree  
The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.  

B. Prerequisites  
The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.  

C. Residence Requirement  
The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time instruction in the major discipline. At this University, beyond the first 24 semester hours of graduate work; this requirement can be met either by (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters; or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a half-time assistantship, stipend, or fellowships. The department as contributing to the student’s doctoral program, for purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.  

D. Plan of Study  
The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examinations. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.  

E. Ad Hoc Interdisciplinary Programs  
A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department must directly concerns which shall be designated as the sponsoring department. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student’s advisory committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, if appropriate, the name of the sponsoring department.  

F. Reduction of Old Credits  
Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.  

G. Limit on Professional Courses  
Work taken by a student in the colleges of Dentistry, Law, or Medicine will not be considered for a graduate degree or be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor’s degree, or has completed work equivalent to that required for a bachelor’s degree at the University of Iowa. The work accepted from the professional colleges must be directly related to the student’s major field of study in the Graduate College, and the plan of study must be approved by the student’s advisory committee. Work completed while registered for a professional degree, or any work completed while a student’s active or permanent professional registration in medicine, dentistry, or veterinary will not be counted as part of the student’s work which must be spent in residence as a doctoral student on the campus of the University.  

H. Joint Program for Master’s and Doctoral Degrees  
Those students who expect to continue their training through the doctoral degree may file a joint program for the master’s and doctorate degree. The master’s examination may be combined with the comprehensive examinations to enter the doctorate for these candidates. The examining committee will report the separate reports of its actions on the final examination for the master’s degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that
leads directly to the doctoral degree without earning the master's degree as an intervening part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments which do require competence in one or more foreign languages establish standards as to the extent and level of competence. Specific requirements will be found in the directories of departments and procedures (see "Section IV.0."). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entering on the student's record.

Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the department.

J. Comprehensive Examination

The candidate must pass a comprehensive examination, consisting of written or oral parts or both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be passed not later than the semester prior to the semester of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the tools of research, the student's competence has been certified.

The comprehensive examination is not a deterministic qualifying examination. It is intended to provide the candidate's mastery of the subject at or near the end of the first or second year of study. If the advisor or the department determines that the student is not ready for the comprehensive examination, the student will be advised to take additional courses or to defer the examination.

The comprehensive examination is given at the discretion of the department, which is concerned chiefly with defense of the thesis. The comprehensive examination is given at the discretion of the department, which is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

In the event of a report with two or more votes of "unsatisfactory," the exact stipulations of the committee should be reported in the report form. The statement must specify the time allowed for satisfying the stipulations and must be specific in delining the area if further examination in a particular area is required, or in describing any additional courses or other procedures that are required. The executive officer of the major department should promptly send a written report to the Graduate College giving the date of removal of "unsatisfactions." In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. Reexamination may be repeated only once, at the option of the department.

K. Postcomprehensive Registration

The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application which has been approved by the student's advisor, the departmental executive, and the Graduate College dean.

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. The student should register for the course, research, and thesis necessary to complete the plan of study.

When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 600- and 700-level courses. A student is required to register for a minimum of 6 credit hours per semester. The student's advisor determines whether the student is making significant use of University facilities (except library privileges) or preparing for completion with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of the session or unless enrollment is required by the department.

L. Dissertation for the Doctoral Degree

One copy of the dissertation, complete and in final form, must be presented at the Office of the Graduate College before the final examination, and not later than four weeks before the graduation date on which the degree is to be conferred.

Two copies of the approved dissertation must be deposited at the Office at least ten days prior to the graduation date. The final copy must be no later than the end of the semester (summer is excluded) following the final examination in which the final examination is passed. Failure to meet this deadline will require resubmission of the student.

Regulars regarding preparation of the dissertation copy will be promulgated by the dean of the Graduate College. Dissertations will be reviewed and then made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty advisor work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as those for print theses.

Written dissertations shall be made available to all members of the examining committee not less than two weeks before the date of the examination.

M. Dissertation Fee

A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods and results of the investigation—not a mere recapitulation of the procedures followed—and intensive questioning on the content and immediate context of the investigation.

The final examination may not be held until the next session after the student passes the comprehensive examination not later than one year after the completion of the study. The final examination in the subject area followed are the same as those for the comprehensive examination.
O. Examining Committees

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of professorial rank from another academic institution. A member of the graduate faculty from outside the major department is included in the comprehensive examination. For the final examination one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions

Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

- CEED 900 (Ph.D., Postcomprehensive)
- 0 a.h.
- 000:901 Master's Final Registration
- 0 a.h.
- 000:107 CIEP Partic Program
- 0 a.h.
- 000:200 CIC Scholar
- 0 a.h.
- 000:002 Iowa Liverpool Exchange Program
- 0 a.h.

Gilmore Hall
Moving to the new Law Library
Program Objectives
The over-riding objective of formal legal education is to establish a foundation for a lifetime of professional growth. The educational standards in law schools in the United States are generally consistent. This foundation is varied. Thorough familiarity with the substance of legal principles and with the operation of legal institutions are important components, but the University of Iowa program places an equal emphasis on the development of fundamental student writing and an appreciation of the role of law and lawyers in society. A unifying feature of the program is the conviction that these objectives can be achieved best by an educational program that cultivates student participation in the learning process and creates regular opportunities for individuals and small groups to conduct challenging teaching who are genuinely interested in each student's professional development.

While many law schools rely heavily on graduate assistants or adjunct instructors to teach lawyers' skills, The University of Iowa is virtually unique in the extent of its involvement of full-time faculty in the development of professional skills in a small-group individualized instruction format.

The University of Iowa College of Law expects its students to graduate the degree of Juris Doctor (J.D.). To be eligible for the degree, a student must satisfy the examination requirements, receive credit for 30 semester hours of credit, complete all required courses, achieve a cumulative weighted average of 65, and satisfy the college's five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their legal training on a full-time basis. This policy coincides with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for a student to enroll for less than 10 semester hours per semester. Students who are unable to attend on a full-time basis should contact the dean's office before registering for classes.

Options for Full-Time Study

The college offers two starting dates for entering students: late May (at the beginning of the fall semester) and late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study. Some students also may attend summer school at any point during their careers.

A class of up to 45 students is allowed to enter law school in May of the year for which they applied. Students in the entering class complete nearly a full semester of work in the first eleven-week summer session, and if they remain in the accelerated track by attending summer school in each subsequent summer, they can graduate nine months earlier than would otherwise be possible. Thus, accelerated student who began law school in the summer of 1986 may graduate in August 1988. Students who begin school in the accelerated program, however, are not required to continue in an accelerated track, but may switch to the regular three-year sequence of study.

Both the accelerated and regular programs consist of 30 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or lower hours without permission of the dean. No student may take more than 17 semester hours per semester or 33 semester hours in summer session without permission of the dean.

Summer Session

The summer session consists of two periods of five and one-half weeks, during which a six to eight weeks per period and there for first-year courses normally are offered. Non-accelerated students may attend either in June or July. Accelerated students meet the entire 11-week session.

First-Year Small-Section Program

One of the distinctive benefits of legal education at The University of Iowa is the first-year small-section program, which integrates training in basic lawyer skills into substantive courses taught by regular full-time faculty. The program's purposes include giving careful attention to the development of each student's skills in legal analysis, argumentation, research, and writing.

In the fall semester (or summer session for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (or fall for accelerated students) each section contains approximately 20 students. The subject matter in the small-section program varies from year to year, but has included virtually every course in the first-year curriculum.

In the small-section course, students are given a series of challenging assignments, each with a different educational objective. Faculty members provide extensive critiques of students' performances and the students receive bith in class and in individual conferences.

Upper-Class Program

In the second and third years, students have the opportunity to gain exposure to a broad array of substantive areas of the law; to concentrate course work in writing and research opportunities in particular areas of interest (e.g., through specialized courses and seminars); and to expand their training in core and written advocacy skills, in interviewing and counseling, in negotiation, and in litigation. Very few requirements exist in the second and third years. All students must take 91,210 Appellate Advocacy I in the second year. Before graduating, all must take 91,212 Constitutional Law I and 91,218 Professional Responsibility and must complete an upper-class small section course. The latter requirement assures students the opportunity to enroll in a small class (usually 30 students) in a variety of subject matters: in conjunction with the substantive material, students complete writing projects designed to teach legal drafting skills.

Each student also must earn five writing credits in order to graduate. The student earns two of the credits automatically by satisfactory completion of 91,210 Appellate Advocacy I and the upper-class small section. He or she can earn the remaining three credits through any combination of courses and activities that carry writing credit, including seminar papers, independent research papers, Legal Clinics, 91,410-411 Client Counseling, 91,412-422 Advanced and advanced appellate advocacy activities.

Legal Clinic

Students who have completed one-half of the lower third-year credits are eligible to participate in the College of Law Legal Clinic Program, which offers opportunities for students to apply their theoretical knowledge to real cases under the supervision of full-time legal practitioners and other attorneys. Clinic students participate fully in interviewing, fact investigation, pretrial discovery, negotiation, and courtroom proceedings.

Students in the Legal Aid Clinic represent indigent clients in several eastern Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Assistance Clinic represent inmates in habeas corpus, habeas corpus, and civil and criminal cases.

Students in the Civil Litigation Clinic work on matters relating to social welfare, handicapped rights, and civil rights.

Students in the Criminal Law Clinic work as law clerks to trial court judges and public law officials. They observe court proceedings, conduct research, and draft legal memoranda and court papers.
work in other aspects of the legislative process.
A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for such courses plus clinic. In addition to these programs carrying academic credit, the College of Law participates each summer in the County Attorneys Internship Program, through which students work as paid employees for county attorneys throughout the state.

Joint Law and Graduate Degree Program
The College of Law has developed a program with a number of departments of The University of Iowa Graduate College, under which students simultaneously pursue degrees in both colleges. Under this program, a student takes a course that is relevant to both degrees, the courses can, within limitations, be counted toward the semester hour requirements of both programs, thereby reducing the time required to obtain the two degrees separately. Hopefully, the joint-degree student will contribute to one discipline the insights and experience gained in the other. Graduate departments with which joint degree programs have been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling Education, Economics, Education, Educational Administration, English, Finance, Journalism and Mass Communication, Family, Hospital and Health Administration, Industrial Relations and Human Resources, Library and Information Science, Music, Philosophy, Political Science, Religion, Sociology, Social Work, and Urban Regional Planning. Further information about joint degree programs is available from the Dean of the College of Law.

A two-year program leading to a commission in the United States Army is available to students entering the College of Law. Information about this program may be obtained from the UI Department of Army Military Science.

International Legal Studies
In keeping with its educational mission of encouraging the acquisition of both broad social awareness and technical professional competence, the College of Law offers a strong program of study in the rapidly expanding fields of international, comparative, and foreign law. It does so essentially for three reasons: first, because virtually everyone in this era of accelerating global interdependence may find herself or himself confronted by problems that require knowledge and understanding of international law and foreign legal systems; second, because lawyers, as professionals and community leaders, influence both directly and indirectly the theory and conduct of United States foreign policy; and third, because the study of public international law, addressing as it does a legal system that still is in its formative stages, provides unique insight into the nature of law and legal process both globally and nationally.

Master of Comparative Law Degree Program
The College of Law offers a one-year Master of Comparative Law (M.C.L.) degree to foreign-trained lawyers coming from outside the Anglo-American legal tradition. Candidates take a seminar orienting them generally to the American legal system and write at least one substantial research paper. The balance of their course work is taken from the regular course offering of the College of Law. In recent years graduates of this program have included lawyers from the Federal Republic of Germany, France, Italy, Libya, the Kingdom of Saudi Arabia, the People's Republic of China, the Republic of South Korea, and Thailand.

Student Life
There are currently 110 student organizations at the College. The co-curricular programs, each managed by students, offering social skills training, and two student publications, the Law Review and the Journal of Urban Law.

The college operates a placement office to assist students and alumni in securing suitable summer and permanent employment.

Financial Aid
A comprehensive financial aid program at the College of Law aims to assist all students who need funds in order to permit them to attend school full time. However, since the financial resources of the low school are inadequate to subsidize the full cost of a legal education for every needy student, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the cost of their education. Applicants are urged to contact the financial aid office at the College for further information about types of aid available.

Admission
Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law. The services that the graduate of the College of Law may be called upon to perform are 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 few exceptions, each student should develop an undergraduate program tailored to his or her needs and interests and develop a particular field of concentration. The college endorses the three basic objectives recommended by a committee of the Association of American Law Schools. Anyone thinking of law school should keep these objectives in mind while planning an undergraduate course of study: education for comprehension and expression in written education; for a greater understanding of human institutions and values; and education for greater power in thinking. That committee strongly emphasized 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 the broader perspective for detailed specialization.

Application Procedures
Applications may be obtained by writing to the Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must get a letter of application in the summer session or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. An examination of $10 must accompany the application of the applicant's baccalaureate degree to the University in Iowa. This is a nonrefundable except for residents of Iowa who are denied admission. Students from disadvantaged backgrounds who cannot afford this fee should write the dean of the college.

The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Admissions Services (LSAS), Box 2006, New York, N.Y. 14160. The College of Law must receive the applicant's LSAT report prior to the deadline for submission of applications.

In the LSAT/LSAS registration packet, the applicant will find Law School Application Matching Forms. To preserve the right to privacy, the Law School Application Matching Form will be kept by the Law School. The Law School Application Matching Form will not be released to any school that does not forward LSAS to a Law School Application Matching Form.

The University of Iowa cannot process an application without a Law School Application starting Form. Therefore, applicants should apply to each school in their order of selection. Applicants should not wait for the request to be forwarded to LSAS. Applicants should forward the form to the Law School as prompt as possible. Applicants should not delay until the form is received.
Law School Admission Test
Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Law School Admission Service, Box 2090, Boston, PA 19034, and have his or her test score forwarded to the College of Law along with the LSDAS report. The test is given several times each year and may be taken at locations in the United States and abroad. Applicants are urged to take the test during the fall preceding the fall in which they desire to enter, so as not to be delayed in any subsequent application.

Deposit
Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $200 by April 1. Applicants accepted after April 1 may make the deposit within two weeks after notification. Failure to deposit on time entitles the applicant to have the deposit refunded, provided that the deposit is not due within two weeks after notification. A student who is awarded financial aid must pay the deposit within two weeks after notification. For those who enroll, the deposit is credited toward the student's first year's tuition and fees. Students who fail to make the deposit within the time specified forfeit his or her place in the entering class.

Evaluation Process
For a more detailed description of the admissions evaluation process, please consult the college's bulletin, which is available from the Admissions Office of the College of Law.

Admission to the Iowa Bar
A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the bar to register that intention with the court no more than 60 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student in the college or from the clerk of the Iowa Supreme Court.

Courses
Course descriptions are listed in the college's bulletin, which is included in the Admissions Office of the College of Law.

Law 363
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Deposit
Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $200 by April 1. Applicants accepted after April 1 may make the deposit within two weeks after notification. Failure to deposit on time entitles the applicant to have the deposit refunded, provided that the deposit is not due within two weeks after notification. A student who is awarded financial aid must pay the deposit within two weeks after notification. For those who enroll, the deposit is credited toward the student's first year's tuition and fees. Students who fail to make the deposit within the time specified forfeit his or her place in the entering class.

Evaluation Process
For a more detailed description of the admissions evaluation process, please consult the college's bulletin, which is available from the Admissions Office of the College of Law.

Admission to the Iowa Bar
A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the bar to register that intention with the court no more than 60 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student in the college or from the clerk of the Iowa Supreme Court.

Courses
Course descriptions are listed in the college's bulletin, which is included in the Admissions Office of the College of Law.

Law 363
Law School Admission Test
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Dean: John W. Schlotthauer
Associate dean, medical student affairs and
coordinator: Carol A. Atcherhousen
Associate dean, academic affairs: Ray
Montgomery
Associate dean, continuing medical
education: Richard M. Coplier
Associate dean, Veterans Administration
affairs: John E. Ketch
Assistant dean, administration and finance:
William L. Lipboho
Consultant to the dean: Paul M. Seebahn,
M.D., M.S.
Assistant to the dean: Richard K. Schott
Degrees offered: B.S., M.D., M.S., Ph.D.

Match Day for College of Medicine seniors
Graduate Programs

The College offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, human nutrition, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master's degree are offered in criminology, environmental science, epidemiology, medical education, physical therapy, and pulmonary physiology.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails six to seven years of study. Further details are given in the program description.

Combined M.D.-Master's Degree Programs

Students who wish to pursue the M.D. degree in combination with a master's degree program may do so by gaining admission both to the College of Medicine and to the Graduate College, and making arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.

Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the disciplines available in the university, without regard to their departmental units or to the separation of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology, neurology, and immunology, in which degrees are not offered. Students can determine emphasis through appropriate selection of a study program. Further information can be obtained from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine:

Clinical Research Center

The Clinical Research Center provides the setting for patient-oriented research of disease processes. Studies of normal human physiology, intermediary metabolism, and physiology also are conducted. This important resource of the college is fully licensed by federal agencies, enabling all faculty members to conduct carefully supervised studies that cannot be accomplished with equal precision with existing beds of the affiliated hospitals.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates the research and training programs related to cardiovascular diseases and incorporates the following federally funded programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Arteriosclerosis, Specialized Center of Research in Ischemic Heart Disease, and Research Center Trial, several training programs, and a coordinated program of other interdisciplinary research supported by a number of individual project grants. Gifts from private donors have underwritten construction of two floors of cardiovascular research laboratories on top of the Medical Research Center.

Diabetes and Endocrinology Research Center

The Diabetes and Endocrinology Research Center coordinates research and training programs related to diabetes and associated metabolic diseases. It was established in 1970 with support from the National Institute of Diabetes and Digestive Diseases.

Cancer Center

A Cancer Center was established in 1980 to coordinate the efforts of the faculty and staff of the University in research, education, and demonstration programs related to all aspects of cancer.

Digestive Diseases Center

This center was formed in 1965 to study neural and humoral controls of gastrointestinal function. It includes research centers for gastrointestinal motility, models, neurology, and analysis of data and biochemicals.

Alzheimer's Disease Research Center

This recently formed center studies the neuropathology and neurological behavior associated with Alzheimer's disease and related conditions with a view to improved diagnosis and treatment.
Educational and Patient Care Facilities

First and second year classes are taught in the Bowen Science Building and the Medical Laboratories.

A Health Sciences Library is a vital resource centrally located on the medical campus.

Students acquire clinical experience in the 1,642-bed University of Iowa Hospitals and Clinics complex, in the adjacent 352-bed Veterans Administration Medical Center, and in a network of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members compose the 441-member clinical staff of The University of Iowa Hospitals and Clinics, whose 1,500 clinical services are directed by the leaders of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 2,891 resident physicians and dentists who make up the care staff of the hospitals and clinics, where facilities are provided for treating all major medical specialties, for residences in all such specialties, and for fellowships in a number of subspecialties.

The University of Iowa Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about The University of Iowa Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Care" in the "Special Resources at Iowa" section of this Catalog.

Research Facilities

A number of facilities that support the research and teaching activities of the College of Medicine faculty are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Cell Surfer Laboratory, Facility for Protein Structure Studies, Electron Microscopy Facility, and a Computer-Assisted Image Analysis Facility. See "Research Activities" in the "Special Resources at Iowa" section of this Catalog.

The animal care facility arranges for the purchase, maintenance, and record-keeping of a wide variety of animals.

The bioengineering facility provides space for electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Devices is a service area for educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, isolates and cooperates in education research endeavors, and conducts teacher education activities.

The medical instrument facility designs and fabricates scientific equipment, providing precision machine services.

The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Geographic, a computer-generated graphics system.

The FS facility meets federal guidelines for biocidal wiping for the small-prep tray containment. It can also be used for research on other biohazardous human or animal pathogens.

A facility for mass spectrometry provides service for structural study of important biological molecules and their analysis by an interface with a gas chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine presently accepts 175 first-year students each year into its four-year course of study leading to the degree Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong tradition of excellence. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.

Basic Medical Sciences

The first three semesters present this core of sciences basic to the study of medicine:

First Semester
99.163 Biochemistry for Medicine Students is centered around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In small group discussions that follow the clinical series, the student starts to use various problem-solving techniques.

60.163 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical and surgical anatomy.

60.164 Histology for Medical Students is concerned with the basic cell and tissue structure and function as affected by disease.

60.166 Human Embryology, Genetics, and Medical Genetics is devoted to human embryology and medical genetics. It is designed for students who are planning to pursue careers in the health professions.

60.198 Logic for Medicine Students provides a course of study for the core introduction concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

Second Semester
60.199 Histology for Medicine Students provides a course of study for the core introduction concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

151.100 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small-group experience through which they learn about roles, improve empathy, and learn to communicate sensitively with patients and colleagues.

63.110 Biostatistics provides guidelines for the application of statistical principles to the medical or health sciences. Emphasis is given to the interpretation of statistical procedures in medical journals.

Third Semester
72.122 Medical Physiology offers the student an understanding of responses that an organism gives to external stimuli and provides a basis for understanding the integrated function of organs. Much of the material in these two courses is presented from a clinical point of view. In small discussion groups, which have essentially replaced laboratory exercises, the students present their evaluations of the physiological mechanisms at work in the clinical material. Some demonstrations are used.

61.163 Medical Microbiology includes immunology and presents a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work plays an important role in this course.

59.254 Medical Neurosciences is an integrated course dealing with the basic principles of neurophysiology and neuroanatomy of the human central nervous system. The laboratory primarily involves the anatomical study of spinal cord and brain stem.

60.195 General Pathology for Medical Students provides an introduction to the principles of clinical and pathological anatomy, with emphasis on the diseases of the central nervous system. Students learn the normal structure and function of the brain and spinal cord and their alterations in disease.

60.198 Logic for Medicine Students provides a course of study for the core introduction concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.
order to describe properly the actions of drugs in the patient. Several elective courses are available to students during the third semester. These courses carry 2 semester hours of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Typical examples are Perspectives in Aging, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine
A major interdisciplinary course, 50111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing a student with the tools for a lifetime of patient care.

The first 4 weeks of mornings is devoted to introducing the patient as a person and giving guidance in interviewing, counseling and history-taking. Following this is an intensive review of clinical medicine on an organ system basis, given by teams of clinicians and basic scientists. The final group of mornings is spent in areas of medicine that do not naturally fit into organ systems, and on revisit of some key subjects.

Throughout the 16 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history-taking and physical examination. Habits of care, concern, and compassion needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships
The third year includes the required clinical clerkships and presents each student with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend nine weeks in internal medicine, six weeks in surgery, pediatrics, psychiatry, and obstetrics and gynecology, and two weeks in each of anatomy, dermatology, neurology, ophthalmology—head and neck surgery, orthopedics, urology, and family practice. Students spend most of this time in Iowa City.

The clinical clerkship year is the most critical period of the total medical education, for it is when the student takes on the posture of a physician to learn first-hand the complexity of medical science when viewed at the bedside, and to understand the responsibility of the physician for human life.

Period of Selective Study
Following the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid
The College of Medicine provides financial assistance on the basis of demonstrated financial need. Most aid is in the form of loans. The Health Professions Student Loan and Guaranteed Student Loan are federally subsidized or sponsored programs. The Medical Education Assistance Program, Garrell Brown Medical Student Loan, and Mudd Loan are College of Medicine programs. The Dr. George Scanlon Medical Student Loan is available to Iowa residents through the Iowa Medical Foundation of the Iowa Medical Society.

A limited number of grants are awarded each year to students who demonstrate exceptional need.

In certain situations, small, short-term emergency loans may be obtained through the college.

Information and advising on financial aid can be obtained through the Office of Student Services, College of Medicine.

Educational Opportunities Program
The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups that are under-represented in American medicine.

Admission to the M.D. Program
The 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.

Preliminary applications are processed by AMCAS beginning June 15 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 closing date is December 1.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $10 fee must accompany the final application from applicants who have not completed work in residence at The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Requests for admission must be filed with the University Office of Admissions at an official transcript from each college be or she has attended.

Requirements
Applicants for admission to the College of Medicine must have:

- Received the baccalaureate degree;
- Completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year in medicine; or
- Completed three years of a baccalaureate program meeting the general education requirements of the college he or she is attending.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory course;
- Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school;
- Chemistry: a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles;
- Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not below 100), and an advanced biology course.

All the foregoing must be taken with appropriate laboratory work.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the degree of Doctor of Medicine.

The medical curriculum program must demonstrate proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills.

Therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine:

- Candidates must be able to observe demonstrations and experiments in the basic sciences;
- Candidates must be able to learn anatomy, physiology, and solve problems, and reach diagnostic and therapeutic judgments;
Promotion Policies and Procedures

Role of the Promotions Committee

The purpose of the promotions committee is to ensure that each person who graduates from The University of Iowa College of Medicine has adequate skills, knowledge, and judgment to assume the responsibilities of a medical doctor. To perform its duties, the committee depends on the cooperation, advice, and judgment of faculty, students, peer administration, and composition of Promotions Committee

The promotions committee consists of six members and the associate dean for medical student affairs ex officio (without vote). There are five faculty members, one of whom is designated by the dean to serve as chair. Two are from two basic science departments, and there are from three clinical departments. There is a medical student member from either the junior or senior class. The dean of the College of Medicine makes faculty appointments to the committee after consulting with the executive committee, and appoints the student member after consulting with the medical student council and the chair of the committee.

Regulations and Procedures

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the course of each grading period. Continued enrollment of a student who has not successfully completed courses in a preceding grading period may be recommended by the promotions committee, provided that an appeal to the promotions committee is made by the student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on examination results and other notes as are determined by each department or course and on clinical skills and competency as deemed appropriate by the department or course. The College of Medicine requires that all students demonstrate proficiency in a variety of skills, problem-solving, manual, communicative, and intellectual skills and insists that all students adhere to the general medical ethics codes. These ethics codes are described in detail in the Handbook for New Students that medical students receive upon matriculation.

Scholastic performance in the first three years is measured by the letters F, P, and I. In the selective studies segment, only grades F, P, and I will be used. The letter P indicates satisfactory achievement at the passing level. The letter I, signifying incompletes, indicates work below the passing level. The letter I is used when, for good reasons, the student has not completed the work of a course.

The promotions committee meets at least three times each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews the course directors the records of all students who receive a grade of F or I during the previous grading period. The committee reviews the record of any student presented by the course directors committee or the associate dean for medical student affairs as doing continually poor academic work, or failing to demonstrate any of the eleven skills or abilities detailed above, or not meeting the medical ethics standards. The committee considers other business or
procedures as deemed necessary to perform its duties as set forth in this charge.

The promotions committee recommends specific actions to be taken in the case of any student whose skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. These recommendations will be forwarded for action to the medical council and executive committee, meeting in joint session to represent the faculty. Possible recommendations include immediately dismissing the student from the college; requiring the student to repeat all or any part of the current curriculum; and allowing the student to continue either a regular or a decelerated schedule. Students having unrecorded grades of failure will be placed on academic probation. A grade of Incomplete, if not reinstated in the time and manner specified in the promotion committee’s recommendation, becomes a grade of failure. Students who are in a probationary status may be considered for dismissal should further academic difficulties arise.

The promotions committee presents all recommendations for the consideration of the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which act on the recommendations for the faculty.

Relationship to Course Directors Committees

The course directors committees will provide advice to the promotions committee for students and will be a resource for and provide access to the promotions committee.

Appeals

Students desiring to appeal promotion decisions must submit an appeal in writing to the dean of the College of Medicine within two weeks after the date of written notice. The appeal shall be heard, and decisions rendered, by the medical council and executive committee meeting in joint session. Students may require an opportunity to appear personally before the joint session to make a statement and answer questions.

Leave of Absence

The College of Medicine believes that certain students may benefit from being granted a leave of absence from the college for specific purposes. Applications for leave of absence should be requested from the associate dean for medical student affairs. It will be granted at the discretion of the dean.

All leaves must be arranged in advance of the student’s absence. If a student requests at any time that a leave begin during a clinical clerkship or clinical elective, the student also must obtain permission from the course director.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result at the discretion of the department, in a grade of F.

Withdrawal

A student may withdraw from the College of Medicine upon approval of a written application submitted to the office of the associate dean for medical student affairs.

Reinstatement

Application for reinstatement by any student who has withdrawn voluntarily or for whom an official notice of withdrawal from the college must be received in writing in the office of the dean at least four months prior to the requested date of readmission.

The faculty is authorized to refuse continued or further registration to any student, if it believes that he or she has not lived up to the expected general fitness requirements for entering the medical profession, as described in detail in the Handbook for New Students. Ordinarily such action is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Informal Procedures

When a dispute arises between a student and a faculty member or department, there is often discussion as to the best way to resolve the problem. The medical school has a formal procedure as stated in “Promotion Policies and Procedures” and an informal procedure as outlined below.

In the College of Medicine, students with problems or complaints should first attempt to resolve the issue with the faculty member with whom they are a problem, leading a satisfactory outcome, the student then should turn to the Ombudsman chair or head. If satisfaction still is not obtained, the student may discuss the complaint informally with the appropriate dean or department head of the College of Medicine. This informal procedure would not be the primary source for involvement of the faculty member with whom the student has a problem. In such cases, the student then should turn to the Ombudsman chair or head. If satisfaction still is not obtained, the student may file a formal complaint through the office of the dean of the College of Medicine.

This informal procedure allows the greatest flexibility for all concerned in resolving the conflict and does not involve the student or the faculty member’s permanent record that are part of the formal procedure. This informal procedure is intended for any situation a student may encounter, including grading disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying patient data), and perceived discrimination or harassment.

When a student is resolving a conflict with a faculty member or department, others should try to avoid jumping to conclusions based on rumors and bits of information. In the interest of the student’s confidentiality, full details of the incident will almost never be released to the medical student body.

Students are encouraged to make full use of the counseling services available from the dean’s office and/or through Student Health Services. These cover the full range of academic, personal, financial, or marital difficulties and usually are handled informally without going into the student’s record, unless it involves an official action (e.g., taking a year off or rescinding an exam).

Associated Medical Sciences

The Division of Associated Medical Sciences is organized to include the programs for medical technologies, nuclear medicine technology, physical therapists, and physician assistants. Admission to these professional programs follows the selection described in the respective sections of this Catalog.

Unclassified Students

Persons who do not wish to be admitted to the College of Medicine but want to register for certain courses will be admitted only if the course is an essential component of a program of study and upon the student’s compliance with all the regular requirements for admission to such a course, or by action of the faculty upon recommendation of the presence of change in the course.

Nondepartmental Courses

861 Medical Electives Fall Year 2 n.r.
862 Medical Electives Spring Year 2 n.r.
863 Internships 2 n.r.
864 Medical in Air Transportation 2 n.r.
865 Human Sexuality for Health Practitioners 1 n.r.
866 Understanding the Quality Care of Patients for Emergency Medical Students. Limited enrollment.
867 Introduction to Skills for the Medical Profession 2 n.r.
868 Introduction to the Field of Helping Others Through Verbal Communication. Students take both the course and the clinic during the same course and the clinic should not exceed 70 hours.
871 Law and Medicine for Physicians Assistant Students 1 n.r.
873 Law and Medicine for Students 2 n.r.

Ways in which unclassified and nondepartmental science can be integrated to student knowledge and techniques relevant to health and illness.
Doctor of Philosophy

Students in the Ph.D. program work directly for the doctorate without an intermediate master’s program. They acquire in-depth expertise in their major field, health science education, cell biology, epidemiology, and neuroscience by taking three or other courses and teaching in lecture and laboratory sections under faculty supervision. Students ordinarily require four to five years of full-time study to complete the doctorate in anesthesiology. During the first year the student chooses two or more faculty members who act as the major advisor. By the end of the second year the student undertakes the comprehensive examination. This requires a research project with the major advisor and formulated a research prospectus. The comprehensive examination answers the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. Subsequent years are devoted primarily to research.

Admission

An applicant for admission to the Ph.D. program in anesthesiology should already have a background in science, mathematics, and upper level courses in biology. For admission requirements, see the "Graduate College" section of the Catalog. In addition to the Graduate Record Examination (GRE) General Test, applicants to the Ph.D. program in anesthesiology are strongly encouraged to take the GRE Advanced Test in Biology or their major undergraduate area.

Facilities

The department occupies over 30,000 square feet in the Bowdin Science Building on the north campus. The quarters house modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including three high-resolution electron microscopes, Balzer evaporation unit, spectrophotometers, cryostats, tissue culture and protein chemistry facilities, and automated gamma and beta counting systems. Through collaborative programs

Anatomy

Heal: Joe D. Couper
Professor: John E. All, Ronald A. Buehner, Kenneth C. Buehler, Joe D. Couper, Paul G. Hoeger, Jr., William W. Kade, John H. Longo, Robert J. Lerman, Gary W. Van Houweling, Terence H. Williams
Associate professors: Kimi Kish-Rabisky, Joan V. Jen, Richard J. Pantaleo, Alexander Sander, James R. West
Assistant professors: Maria D. Cassell, James C. Smith, Sue Ann Thompson
Associate: Gal Greenwald
Degree offered: M.D., Ph.D.

The department offers three major fields of study to prepare for careers in anesthesiology: provides advanced courses, training experience, and research training to graduate students preparing for careers in academic research and related scientific fields, and conducts original research within biological structure and function-basis relationships.

Preclinical Study for the Health Care Professions

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, histology, and neuroscience. The department participates in the Medical Science Training Program, the Cellular and Molecular Biology Training Program, and the newly established Neuroscience Program.

Graduate Programs

Master of Science

Admission to the M.S. program is limited to individuals who hold or are currently registered for a health professional degree. The M.S. program is designed for individuals who are employed in the health-care professions and seek a master's degree for purposes of professional improvement.

Doctor of Philosophy

Students in the Ph.D. program work directly for the doctorate without an intermediate master's program. They acquire in-depth expertise in their major field, health science education, cell biology, epidemiology, and neuroscience by taking three or other courses and teaching in lecture and laboratory sections under faculty supervision. Students ordinarily require four to five years of full-time study to complete the doctorate in anesthesiology. During the first year the student chooses two or more faculty members who act as the major advisor. By the end of the second year the student undertakes the comprehensive examination. This requires a research project with the major advisor and formulated a research prospectus. The comprehensive examination answers the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. Subsequent years are devoted primarily to research.

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Courses
1104 Clinical Anesthesiology 2 s.h.
Clinical procedures in the operating room and recovery room include administration, clinical care conferences, small group discussion sessions. Required for junior medical students.

1103 Clinical Anesthesiology Senior 4 s.h.
Instruction and practical experience in various types of anesthesia for surgical procedures. Basic techniques of general, spinal, epidural, and peridural, local block anesthesia, instruction in sophisticated intravenous and muscle paralysis drug administration. Basic instruction in the principles and practice of postoperative resuscitation, pharmacology of general and regional analgesia, principles of respiratory and cardiovascular monitoring, and various methods of treatment. Course includes general anesthesia assessment, morbidity and mortality conference.

1103 Intermediate Care 0 s.h.
Evaluation and treatment of acutely ill patients in a special intermediate care unit. Experience in the multiple functions, monitoring of cardiovascular status, shock, fluid and electrolyte balance, advance monitoring techniques, and care of the special diagnostic and surgical patients and those needing periodic ventilatory assistance. Prerequisite: Free general surgery I or II.

1103 Clinical Anesthesiology Seminar 0 s.h.

1103 Basic Science Seminar 0 s.h.

1103 Biologic and Medical Cybernetics 0 s.h.

1103 Path Class 4 s.h.

110 Special Studies on Campus 0 s.h.
Research in a well-defined project leading to a academic individual paper submitted and approved of by the instructor.

110 Special Study off Campus 0 s.h.

Division of Associated Medical Sciences
Head: Ria Montgomery
The Division of Associated Medical Sciences provides coordination of professional programs that presently include medical technologists, nuclear medicine technologists, physical therapists, and physicians assistants. Flexible undergraduate programs prepare students for entry into these professional areas. The student usually selects the special area and individual paper submitted and approved by the instructor, and is assigned a faculty adviser from the division.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics: physics, computer science, and psychology are required by some programs and are highly recommended for others. The student should plan his or her study program carefully so that conflicts in specifically required courses do not occur. It is imperative that the student consult with the appropriate program director to assure the proper sequence of courses.

This is a typical curriculum for undergraduate students, with options being exercised on a consultation with a program advisor. Programs are abbreviated as follows: MT—Medical Technology; NMT—

Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

Freshman Year
First Semester
101 Human Anatomy 4 s.h.
Foreign civilization and culture 3 s.h.
Physical education skills 2 s.h.
105 Principles of Chemistry I 3 s.h.
2015-16 Mathematics for the Biological Sciences 4 s.h.
Total 16-18 s.h.
Second Semester
102 Human Anatomy 4 s.h.
Historical Perspectives 3-6 s.h.
Physical education skills 1 s.h.
14 Principles of Chemistry II 5 s.h.
37 Principles of Animal Biology (NMT, PA, PT) 5 s.h.
61 General Microbiology (MT) 5 s.h.
Total 16-21 s.h.

Sophomore Year
First Semester
Human Anatomy 3 s.h.
Social sciences 3 s.h.
401 Organic Chemistry I (MT, PA) 3 s.h.
29-31 College Physics (NMT) 4 s.h.
37 Principles of Animal Biology (NMT, PA, PT) 5 s.h.
61 General Microbiology (MT) 5 s.h.
Physical education skills 1 s.h.
Total 15-18 s.h.
Second Semester
Historical perspectives (MT) 3 s.h.
Human Anatomy 3 s.h.
Social sciences 3 s.h.
29-32 College Physics (NMT) 4 s.h.
100-level zoology course (PA) 3 s.h.
402 Organic Chemistry II (PA) 3 s.h.
315 General Psychology (PT) 4 s.h.
401 Elementary Quantitative Analysis (MT) 4 s.h.
61-62 Introduction to Biostatistics (MT) 3 s.h.
Total 14-18 s.h.

The student who has satisfactorily completed the above prerequisites has satisfied the minimum academic requirements for entry to the Medical Technology, Nuclear Medicine Technology, and Physician Assistant Programs. Others complete the additional requirements below.

Junior Year
First Semester
Foreign language 4 s.h.
201 Introduction to Computing with FORTRAN (NMT, PA) 4 s.h.
29-31 College Physics (PA) 4 s.h.
37 Human Genetics 3 s.h.
or 37-303 Comparative Vertebrate Anatomy 4 s.h.
37-112 Cell, Tissue, and Organ Biology 5 s.h.
Total 14-18 s.h.

Senior Year
General education electives, or advanced courses in the departments of botany, microbiology, chemistry, biology, or others specified for specific degree requirements.

A student who has satisfactorily completed the prerequisites has satisfied the minimum academic requirements for admission to the physical therapy program in the senior year.

Medical Technology
Director: Maria Schnellbacher
Medical Director: James A. Gorbals
Associate Professor: James A. Gorbals
Lecturer: Mervin Schnellbacher
Advisor: Larry Stufflebaur, Rutherford Yabla
Associate: James O'Conor
Assistant to teaching: Kathleen Kelly, Lucy Wall
Adjunct Instructor: Jon Ackley

Adjunct Associate: Thomas Person
Adjunct Professor: Katina Berline, Desiree Connele, Linda Degriman, Jan Frerotch, Jon Hammond, Diane Hestan, Jerry Hudson, Paul Kuhler, James Lucco, Matthew Logue, Matthew McNeely, Ron Meyer, Chris Schramm, Karen Sutter

Degrees offered: B.S.

Medical technologists perform the laboratory tests on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories: clinical, physicians' offices; and industrial, pharmaceutical, biological, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of specialized 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.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, the College of Liberal Arts, the University of Iowa Hospitals and Clinics, and the Iowa City Veterans Administration Medical Center. Successful completion of this program qualifies the student to take all medical technology certification exams.

601 Elementary Human Anatomy (NMT) 4 s.h.
3113 Introduction to Clinical Psychophysiology (PT) 3 s.h.
Total 15-18 s.h.

Second Semester
Foreign language 4 s.h.
201 College Physics (PT) 4 s.h.
37-105 Cell Physiology (NMT) 4 s.h.
37-106 Human Physiology (NMT) 4 s.h.
37-108 Fundamental Genetics (PT) 3 s.h.
225-101 Biostatistics (NMT, PT) 3 s.h.
Total 16-18 s.h.

Junior Year
Medical education electives, or advanced courses in the departments of botany, microbiology, chemistry, biology, or others specified for specific degree requirements.

A student who has satisfactorily completed the prerequisites has satisfied the minimum academic requirements for admission to the physical therapy program in the senior year.
Admission
The professional program is limited to 30 students who begin the program in late May. Applications close October 31. Fifteen students continue during the fall and spring semesters and complete the program in May. The other fifteen have the opportunity to complete unthrust prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December.

To apply for admission to the professional program, the student must be able to complete all of the prerequisite and University graduation requirements by the end of the preprofessional (clinical) year.

Sixteen semester hours of chemistry, including quantitative analysis, qualitative analysis, organic chemistry, and biochemistry.

Sixteen semester hours of biology, including a course in statistics and an introduction to biology, general zoology, microorganisms, microbiology, physiology, and parasitology.

Admission is on a competitive basis. Minimum cumulative grade-point averages of 2.5 overall and 2.5 in science courses are required. An applicant who fails the program as an undergraduate student must meet the same admission requirements of the University and the College of Liberal Arts. Any student who 2.5 and failed the program may be admitted to the program as an adult student and receive credit for any previously completed courses, as long as they are not more than 2.5 years old.

Expenses
Medical Technology students in the professional year curriculum are responsible for their textbooks, University tuition, and student fees. Laboratory coats and equipment, such as microscopes, are provided by the program.

Nuclear Medicine Technology

Director: Kenneth A. Helms
Medical director: Peter T. Kirchner
Technical director: John A. Bricker
Professor: Frank H. Chang, James C. Etheridge, Peter T. Kirchner, Richard L. Peterson, Regge H. Sorensen
Associate professors: Wei Chang, James K. Sedlack
Instructor: Gary R. Conrad, William A. Pettit, Karen Ryan
Assistant professor: James A. Bono
Associate professor: James A. Bono
Degree offered: B.S.

Nuclear medicine technology is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. It is a rigorous, dynamic field that has grown rapidly over the past two decades and is still expanding and growing in complexity. This continued expansion of the specialty has created a growing demand for highly skilled and motivated nuclear medicine technologists. Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracer in the human body.
Senior Year

The curriculum of this clinical year is organized in accordance with the "Essentials of an Accredited Educational Program in Nuclear Medicine Technology." Courses are taught in the following areas: radiopharmacy, radiology, radiophysics, and tracer techniques, radiopharmacology and immunology, radiopharmaceutical laboratory procedures, radiation protection, patient care, medical terminology, anatomy, and physiology. A minimum of 3 semester hours in radiopharmacy in vivo and in vitro, including kinetic studies. Rotations also are established in radiopharmacology, diagnostic X-ray, computed tomography, magnetic resonance imaging, and ultrasound.

The clinical year consists of these courses:

74:011 Principles of Nuclear Medicine I 6 s.h.
74:102 Introductory Clinical Nuclear Medicine 6 s.h.
74:103 Principles of Nuclear Medicine II 3 s.h.
74:104 Intermediate Clinical Nuclear Medicine 9 s.h.
74:105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Prerequisites for early admission to the nuclear medicine technology program include:

- A minimum of 60 semester hours in all course work, with a minimum cumulative grade-point average of 2.5.

- Fulfillment of the College of Liberal Arts General Education Requirements in rhetoric, physical education, humanities, historical perspectives, foreign civilization, and social sciences (sociology and psychology are recommended).

- A minimum of 10 semester hours in three science areas, including a complete introductory course in laboratory chemistry, physics, and zoology.

- A minimum of 3 semester hours in mathematics, including at least intermediate algebra.

- Fulfillment of these basic admission requirements does not ensure acceptance into the nuclear medicine program. Placement on the junior year to the final clinical year is conditional upon satisfactory completion of a minimum of 94 semester hours of study in the recommended areas.

- A core course in biology is required in early August each year. Application materials must be received by March 1. Personal interviews are scheduled in April and the class is presented by May 1. The present class is limited to eight students. Because the prerequisites are becoming increasingly important, prospective students are encouraged to early apply and consult with the program office to plan an appropriate preprofessional program.

Financial Aid

Students in the nuclear medicine technology program 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 and are awarded on the basis of demonstrated need. Part-time work in the Department of Radiology also is available on a limited basis.

Physical Therapy

Director: Gary Sobedern

Professor: Gary Sobedern

Associate professor: David Nelson

Assistant professor: Carl Stoddard

Assistant professor: William Dostal

Assistant professor: Rondva Maier

Adjunct associate: Jan D'Alton, Karen Edstrom, Anne L. Lattman, John Hines, Lorena Loehr, John Wadsworth

Counselor: Frank Martin

Degree offered: Certificate in physical therapy, M.A.

Physical therapists participate in evaluation of the capabilities and limitations of patients. They administer treatment to alleviate pain, correct or minimize deformity, and improve the general health status of the individual; and they teach the patient, the patient's family, or other personnel the appropriate procedures for the patient's continuing care. They are also involved in the administration of physical therapy facilities, the supervision of supportive personnel, and consultation with other health professionals.

Physical therapy offers a wide variety of opportunities for professional practice in general or specialized hospitals, in programs for disabled children, and in physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

The program is available at three different levels: the basic professional (Certificate), the Master of Arts, and a more advanced training obtained by completing the Ph.D. in physical education with special emphasis on therapeutics. There are 60 students in the basic professional program and approximately 17 full- and part-time students in advanced degree programs. The facilities are excellent and well-equipped for classroom and laboratory instruction. The Physical Therapy Program is located in the College of Medicine on the Health Sciences campus, which includes the University of Iowa Hospitals and Clinics, the nation's largest university-owned teaching hospital. The location allows several resources readily accessible to the Physical Therapy Program: basic science and medical faculty, basic science courses, and internships/benefits associated with a College of Medicine environment.

Professional Program

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association, Satisfactory completion of the professional program qualifies graduates for the National Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

- First Semester

  60:000 Human Anatomy 4 s.h.
  101:000 Fundamentals of Physical Therapy 4 s.h.
  101:100 Kinesiology 3 s.h.
  101:121 Therapeutic Physical Agents 3 s.h.
  101:141 Introduction to Physical Therapy Practice 1 s.h.
  60:100 Introduction to Human Pathology 3 s.h.

- Second Semester

  60:100 Human Anatomy and Neurophysiology 4 s.h.
  101:100 Therapeutic Exercise I 2 s.h.
  101:110 Therapeutic Exercise II 2 s.h.
  101:111 Introduction to Clinical Medicine 4 s.h.
  101:112 Emotional Aspects of Disability 1 s.h.
  101:000 Physical Agents I 2 s.h.
  101:140 Fundamentals of Cardiovascular Therapeutics 4 s.h.
  101:149 Scientific Inquiry I 1 s.h.
Third Semester
101:102 Fundamentals of Person-Centered Care 3 s.h.
101:111 Therapeutic Exercise II 4 s.h.
101:113 Principles of Nutrition and Clinical Sciences 1 s.h.
101:195 Clinical Education and Rehabilitation 2 s.h.
101:120 Scientific Inquiry II 2 s.h.
101:121 Physical Therapy Macromolecular Biotargets 1 s.h.
101:170 Prosthetics and Orthotics 1 s.h.

Fourth Semester
101:120 Clinical Internship 15 s.h.

Admission
A new class is admitted to the professional certification program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree.

A student entering the program after the third year of undergraduate study must be able to satisfy all requirements for the baccalaureate degree by successfully completing the first year of the professional certification program.

Undergraduate students who complete their preprofessional work at other colleges or universities must meet the general admission requirements of The University of Iowa College of Liberal Arts. They should consult with the director of the Physical Therapy Program to plan their preprofessional studies to meet the requirements of the Physical Therapy Program.

Regardless of academic preparation prior to admission, all students are enrolled in the same preprofessional curriculum leading to certification in physical therapy. To be considered for admission, the applicant must have completed at least 34 semester hours of college study, including a complete introductory course and one advanced course in zoology or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (8 semester hours), a complete introductory course in physics (8 semester hours), a complete introductory course in psychology (6 semester hours), general human systems physiology course, one college-level mathematics course (3 semester hours), and statistics (3-4 semester hours). The student must have completed all academic courses in the major departments offering the courses, and all must include at least one four-hour laboratory instruction.

The applicant must have a minimum overall grade-point average of 2.7, and should have a 3.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

All applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Results of the examination must be mailed to The University of Iowa.

Personal interviews are required. The physical therapy admissions committee selects the applicants who appear to be best qualified for the study and practice of the profession.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is February 1.

Expenses
In addition to general University expenses, students in the Physical Therapy Program are responsible for purchase of uniforms, malpractice insurance, and course syllabi.

Graduate Programs
Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal, neuromuscular, and cardiopulmonary. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practicum experiences are offered to complement these specialties. The master's degree requires a minimum of 60 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Physical therapy laboratories are available for human and animal studies. These laboratories are well-equipped with electromechanical systems and computers for measurement and analysis of musculoskeletal function (muscle strength and endurance, gait, posture, and disability evaluation), neuromuscular activity (electromyography, spinal reflexes, CSE control mechanisms), and cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation). Use of experimental laboratory facilities also may be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedic surgery, physiology and biophysics, anatomy, engineering, and pharmacology, and with personnel in the physical therapy clinics.

A student successfully completing the M.A. program in physical therapy will be able to engage in original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices. Be able to engage in teaching at the undergraduate and postbaccalaureate level of physical therapy education and show promise of teaching at the advanced master's level. Have knowledge of the physical therapy theoretical and research literature related to a specific topic; be skilled in the application of basic concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy. Required courses:

102:211 Biomedical Instrumentation 3 s.h.
101:191 Thesis Physical Therapy 4 s.h.
101:355 Analysis of Scientific Literature 2 s.h.
63:182 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
110:123 Principles of Human Motion 3 s.h.
101:275 Evaluation of Selected Neuromuscular Disorders 3 s.h.
110:201 Cardiopulmonary 3 s.h.
101:355, 250, or 294 Practicum (Teaching, research and/or clinic) 3 s.h.

*Maximum of six semester hours. **May be taken on a pass-fail basis.

7W:120 Introduction to Instructional Design and Technology 3 s.h.
69:203 Introduction to Human Performance Assessment 3 s.h.
101:355 Independent Study 3 s.h.
101:285 Electromyography in Kinesiology and Biomechanics 3 s.h.
110:327 Research in Therapeutics 2.s.
21:353 Advanced Anatomy and Kinesiology 2 s.h.
21:141 Exercise Physiology 3 s.h.
71:210 Drugs: Their Nature, Action, and Clinical Significance 2 s.h.
7W:262 Facilitating Learning in Health Science Education 3 s.h.

Admission
To be considered for admission, the applicant must be a graduate of an approved professional program or physical therapy and must have earned a grade-point average of 2.7 or higher (on a 4.0 scale) in all undergraduate work. Two years of clinical experience also is considered highly desirable.

Admission to the master's degree program is based on the student's grade-point average for previous collegiate academic work, scores on the Graduate Record Examination (GRE) Aptitude Test, and recommendations from three sources, including personal interviews. The applicant also must meet the requirements established by the Graduate College.
The applicant must complete the Graduate College application. The application is reviewed after the applicant has been accepted by the Graduate College and all aspects of the written application for the Physical Therapy Educational Programs are submitted. Deadlines for completed written applications are October 15 (notification by December 15), March 15 (notification by May 15), and May 15 (notification by July 15).

Doctor of Philosophy in Physical Education (therapeutics)

Doctoral training related to physical therapy is received in a program in physical education with special emphasis on therapeutics. The program is described in detail under "Exercise Science and Physical Education" in the "College of Liberal Arts" section of the Catalog. A student successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

- Be able to perform original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices.
- Be able to teach at the basic professional and master’s degree levels of physical therapy education and show promise of teaching at the doctoral level.
- Have comprehensive knowledge of theoretical and research literature in areas of specialization.
- Be skilled in the application of basic and advanced concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy.

Admission

The student is admitted to the study program leading to the Ph.D. degree in the basic professional and master’s degree levels of physical therapy education on the work completed for the master’s degree and score on the GRE Aptitude Test. To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work undertaken. In addition, the GRE scores must be on file at The University of Iowa.

The applicant must complete the Graduate College application. The Admissions Office evaluates application materials to ensure that they meet University Graduate College standards. The application, including test scores and copies of transcripts, is sent to the department for review.

Deadlines for the completed written applications are October 15 (notification by December 15, March 15 (notification May 15), and May 15 (notification July 15).

Financial Aid

A number of teaching and research assistantships are available; part-time clinical work may also be available.

Courses

The courses listed below are open only to students in the professional program.

180.00 Fundamentals of Physical Therapy 2 a.h.
- Rationale and utilization of physical therapy methods and techniques in the management of musculoskeletal and neuromusculoskeletal disorders.

180.05 Therapeutic Exercise 1 2 a.h.
- Continuation of 180.00.

190.05 Therapeutic Exercise 1 2 a.h.
- Descriptive medical and electromyographic, application of principles, methods, and techniques to diagnose and treat therapeutic use of medical electricity, laboratory demonstrations and assignments to develop the individuals' techniques.

180.05 Clinical Situations and Rehabilitation 1 a.h.
- Presents and applies clinical criteria of the patient care concept. Continuation of 180.05, which is prerequisite.

190.05 Introduction to Clinical Medicine 2 a.h.
- Lectures, demonstrations, and case presentations of medical diseases from the standpoint of ionic, clinical signs and symptoms, treatment, and prognosis.

190.10 Fundamentals of Orthopedics and Clinical Sciences 2 a.h.
- Lectures, demonstrations, and case presentations of orthopedic diseases from the standpoint of ionic, clinical signs and symptoms, treatment, and prognosis.

190.10 Therapeutic Exercise 2 2 a.h.
- Lectures, demonstrations, and case presentations in principle and techniques of therapeutic methods relative to tissue and muscular-skeletal rehabilitation.

190.15 Principles of Neurology and Clinical Sciences 1 a.h.
- Lectures, demonstrations, and case presentations of neurological diseases treated by therapy, same as 160.02.

190.10 Kinetics 2 a.h.
- Study of static electromechanical, structural, and functional mechanics of human lever systems, movement, and service classes, and defined structure, mechanical, neuro-mechanical, and muscular influence on normal and pathological function, technique, usability, and stability of method of substitution of a faculty in neurological rehabilitation.

190.10 Clinical Observership 1 a.h.
- Practice of physical therapy procedures in hospital situations under conditions of supervision and with simultaneous medical consultation.

190.15 Clinical Internship am
- Eighteen weeks of full clinical experience, 600 hours of clinical experience, and 150 hours of sick leave calculable through clinical practice. This experience is evaluated through electrocardiogram in order to transfer completion.

190.12 Physical Therapy Management and Administration am
- Lectures and seminars related to principles of management in physical therapy practice.

190.10 Emotional Aspects of Disability am
- Emotional problems related to physical disability and medicine of psychotherapy.

180.05 Therapeutic Physical Agents 1 a.h.
- Theory, physiology, and use of therapeutic agents and their medical management as used in all aspects of physical therapy, therapeutic hydrotherapy, technology of water, techniques of whirlpool, hot and cold applications, and underwater exercises, as it relates to various physical therapy situations.

190.10 Introduction to Physical Therapy am
- Lectures and seminars related to principles of physical therapy and other allied health professions; professional ethics and responsibilities of the individual to the profession and society.

190.10 Scientific Inquiry 1 a.b.
- Study of the scientific method applied to problems of physical therapy; student defines problems, conducts research, and analyzes existing literature.

190.10 Scientific Inquiry II 2 a.b.
- Continuation of 190.10.

180.10 Fundamentals of Cardiovascular Therapy 4 a.h.
- Review of cardiovascular anatomy and physiology with emphasis on cardiovascular disease, management of cardiovascular disease, management of patients with acute and chronic cardiovascular disease, and management of neurological patients.

190.10 Pathophysiology and Orthotics 1 a.h.
- Principles and techniques in the design and use of prosthesis and orthotics.

190.15 Biostatistical Instrumentation am
- Basic concepts in electronic and application of these concepts to physical therapy research and practice.

190.10 Advanced Seminar in Physical Therapy am
- Current status of research for biological, mechanical, and psychological components pertinent to muscular-skeletal, musculoskeletal, and cardiorespiratory areas of physical therapy. Offered on an as-needed basis.

190.12 Seminar in Physical Therapy am
- Seminar in Physical Therapy.

190.12 Cardiovascular Laboratory Therapeutics am
- Discussion and laboratory sessions for advanced principles and mechanisms in the ability to perform and explain physical activity in health and disease, clinical and laboratory methods of cardiovascular and pulmonary assessment; laboratory included.

190.10 Evaluation of Effectiveness am
- Measurement and evaluation of physical therapy outcomes using particular methods.

190.10 Biostatistical Instrumentation am
- Measurement and evaluation of physical therapy outcomes using particular methods.

190.10 Advanced Seminar in Physical Therapy am
- Current status of research for biological, mechanical, and psychological components pertinent to muscular-skeletal, musculoskeletal, and cardiorespiratory areas of physical therapy. Offered on an as-needed basis.

190.10 Seminar in Physical Therapy am
- Seminar in Physical Therapy.

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190.10 Advanced Seminar in Physical Therapy am
- Current status of research for biological, mechanical, and psychological components pertinent to muscular-skeletal, musculoskeletal, and cardiorespiratory areas of physical therapy. Offered on an as-needed basis.

190.10 Seminar in Physical Therapy am
- Seminar in Physical Therapy.

190.12 Cardiovascular Laboratory Therapeutics am
- Discussion and laboratory sessions for advanced principles and mechanisms in the ability to perform and explain physical activity in health and disease, clinical and laboratory methods of cardiovascular and pulmonary assessment; laboratory included.

190.10 Evaluation of Effectiveness am
- Measurement and evaluation of physical therapy outcomes using particular methods.

190.10 Biostatistical Instrumentation am
- Measurement and evaluation of physical therapy outcomes using particular methods.
Physician Assistant Program

Director: Dennis Oliver

Assistant Professor: Douglas W. Lauer

Associate Professor: Patricia A. McKey

Assistant Professor: Jerri Laury

Degree offered: R.S.

The physician assistant is qualified by general education, training, experience, and personal character to provide patient services under the responsible supervision of a licensed physician.

The physician assistant serves in a variety of ways and provides a wide range of medical services. In typical office settings he or she is frequently the first to see the patient, take the initial history, do an appropriate physical examination, and order necessary laboratory or X-ray studies. For many common problems the physician assistant may formulate and initiate a treatment plan. The patient may or may not see the physician, depending on the severity of the problems. The physician is consulted frequently and reviews each patient's chart in a timely manner.

As an extension of the physician, the physician assistant makes hospital rounds, house calls, and visits to nursing homes. He or she reviews the patient's progress, modifies the treatment plan if necessary, and performs many other health care functions. He or she provides counseling to patients about their illness, family planning, availability of social services, well-baby care, and other aspects of health care maintenance.

The Physician Assistant Program at The University of Iowa is accredited by the American Medical Association Committee on Allied Health Education and Accreditation. The program is approved by the Iowa Board of Medical Examiners and is a member of the Association of Physician Assistant Programs. Completion of the program prepares students for the Bachelor of Science degree and for the opportunity to take the National Certification Examination for Primary Care Physician Assistants. Successful completion of the certifying examination is a prerequisite for registration as a physician assistant in Iowa.

The Physician Assistant Program at The University of Iowa emphasizes the practice of general medicine in settings designed to foster team-based health care teams. Clinical training is provided in affiliated hospitals and office-based practices in a range of primary care medical settings, including hospitals, long-term care facilities, internal medicine, and pediatrics.

Additional rotations in medical and surgical specialties and subspecialties are available and qualify the graduate for employment in many health care areas.

Professional Program

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at The University of Iowa Health Center. A major portion of the second year's clinical work occurs throughout the state in primary care settings.

The two-year educational program is divided into three broad phases.

The initial, didactic phase consists of seven months of course work in a number of basic science areas, including anatomy, biochemistry, clinical pathology, microbiology, pathology, pharmacology, and physiology/biophysics. Whenever appropriate, related subjects are integrated to provide sequential lecture and laboratory experience. A seminar course specifically directed to the history, development, and future of the physician assistant profession is also offered during this session.

The second phase is a 50:121 Introduction to Clinical Medicine for Physician Assistant Students. This full-semester course involves the application of basic science knowledge to the understanding of clinical-pathologic correlations, the common and catastrophic disorders encountered in the major disciplines of medicine. The student also is instructed in the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken with nursing student.

The third clinical phase consists of supervised rotations of 16 to 20 weeks, each 20 weeks for different rotations. These clinical rotations are designed to expose the student to medical care in a variety of settings and work patterns.

Professional Curriculum

First Year

71:125 Pharmacology for Health Sciences: Physician Assistant Students 6 s.h.
50:105 Law and Medicine for Physician Assistant Students 1 s.h.
60:111 Gross Human Anatomy for Physician Assistant Students 6 s.h.
61:12 Health Sciences Microbiology 4 s.h.
68:203 Introduction to Human Pathology 4 s.h.
99:164 Biochemistry for Physician Assistant Students 3 s.h.
117:10 Seminar for Physician Assistant Students 2 s.h.

Phase II

50:121 Introduction to Clinical Medicine for Physician Assistant Students 20 s.h.

Second Year

Phase III

Required clinical rotations:
70:555 Pediatrics for Physician Assistant Students 5 s.h.
75:555 General Surgery for Physician Assistant Students 6 s.h.
78:555 Internal Medicine for Physician Assistant Students 6 s.h.
110:555 Family Practice I for Physician Assistant Students 6 s.h.
115:555 Family Practice II for Physician Assistant Students 6 s.h.
66:190 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
73:180 Psychiatry for Physician Assistant Students 4 s.h.
Elective clinical rotations, selected from the following:
70:102 Pediatrie Elective for Physician Assistant Students 2 s.h.
75:100 Emergency Room Elective for Physician Assistant Students 2 s.h.
75:102 Orthopedics Elective for Physician Assistant Students 2 s.h.
115:100 Family Practice Elective for Physician Assistant Students 2 s.h.
78:100 Internal Medicine Elective for Physician Assistant Students 2 s.h.
62:53 Dermatology Elective for Physician Assistant Students 2 s.h.
64:100 Neurology Elective for Physician Assistant Students 2 s.h.
74:50 Radiology Elective for Physician Assistant Students 2 s.h.
75:110 Surgery Elective for Physician Assistant Students 2 s.h.
76:105 Rehabilitation Elective for Physician Assistant Students 2 s.h.
75:100 General Surgery Elective (Cardiology) for Physician Assistant Students 2 s.h.
79:120 Ultrasound Elective for Physician Assistant Students 2 s.h.
**Medicine/Physician Assistant Program**

611.1066 Clinematics and Gynecology Elective for Physician Assistant Students
arr.

73.101 Psychiatry Elective for Physician Assistant Students
arr.

75.110 Surgery Elective (Bun Unit) for Physician Assistant Students 2 e.h.

**Admission**

To be eligible for admission to the Physician Assistant Program, the applicant must have completed at least 60 semester hours of college level study, including:

- College of Liberal Arts General Education Requirements in rhetoric, physical education skills, historical perspectives, humanities, quantitative or formal reasoning, foreign civilization and culture, and social sciences.

- Complete introductory courses in inorganic and organic chemistry; and

- A complete introductory course and at least one advanced course in zoology or animal biology.

It is also strongly recommended, although not required, that the applicant's background include analytical geometry, beginning calculus, and physics.

The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college course work undertaken. The admissions committee gives special attention to the applicant's performance in science courses. In the past, the successful applicant has had a cumulative and science grade-point average of 3.1, a total of 125 semester hours of college credit at which 50 semester hours were in the sciences, and approximately one year of full-time or part-time health-related patient care experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience immediately following a patient contact receive preferential consideration. The committee reserves interviews with the most qualified applicants.

Students are advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in the areas of biology, chemistry, or biochemistry. In this way, students who are not admitted to the Physician Assistant Program can pursue the baccalaureate.

Each new class begins the last week in May. Applications are accepted beginning one year in advance, and close January 15. Each applicant must complete the Physician Assistant Program application and submit at least three letters of recommendation.

**Expenses**

In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment, approximately $350. Microscopes are not required.

**Courses**

117.080 Cooperative Education Pre-Physician Assistant Training Assignment 2 e.h.

117.101 Physician Assistant Clinical Second Year arr.

117.200 Cooperative Education Pre-Physician Assistant Clinical Assignment 2 e.h.

117.200 Introduction to Selected Health Professions 2 e.h.

- Introduction to the history, regulatory, education, and risk of health professionals in both public and private medical settings, including diagnosis, treatment, and management of common diseases affecting these professions. Classes presented on days 09.20, 10.25, and 11.09.

117.203 Seminar for Physician Assistant Students 0.5 e.h.

- Lectures, readings, and group sessions dealing with the history and development of the physician assistant profession. Open only to students in the Physician Assistant Program.

**Biochemistry**

Acting Head: Charles Swenson


Associate professors: Barry H. Greenberg, Gene F. Laso, Peter Robinowitz, Joseph A. Wulder

Assistant professors: Alice R. Fulton, Brian G. Van Ness

Degrees offered: B.A., B.S., M.S., Ph.D.

**Undergraduate Programs**

See "Biochemistry" in the "College of Liberal Arts" section of the Catalog.

**Graduate Programs**

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue M.S.M.D. or Ph.D.M.D. (medical scientist training) combined programs.

The focus of the graduate program is on the individual student, whose educational needs are met in formal course work and tutorial research experience that serve as the basis for selecting a thesis topic. First-year students take general and advanced biochemistry courses (usually 39.110, 39.115, 39.130, and 39.170) and a course of elective oral presentation (39.282 Seminar). Students spend about half of their time working in three different faculty laboratories (39.281 Research Techniques), learning research techniques in the context of ongoing projects.

At the end of the first year students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. Students are required to complete a minimum of 6 semester hours of microscopes in biochemistry and 6 semester hours of elective science courses offered in other departments. After passing the comprehensive examinations toward the end of the second year, students are admitted formally to degree candidacy, and concentrate on their thesis work. The program culminates in the completion of this work and its successful defense before the thesis committee.

In addition to meeting these and the general requirements of the Graduate College, students are expected to assist in the teaching of biochemistry for two or three semesters, as part of their training.

Throughout the program, students are associated with small seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

**Research Interests**

The Department's current research interests include the study of protein structure and function, regulation of gene expression and recombination, mechanisms of protein biosynthesis, the role of nucleic acid in the replication of cellular structure, determinants of cell shape and motility, and mechanisms of hormone action.

**Facilities**

Biochemistry occupies modern research quarters in the Bowen Science Building, as do the departments of Anatomy, Microbiology, Immunology, and Physiology. Research and teaching facilities for the Department of Biochemistry are located on a single floor.

The building houses important shared research facilities and equipment facilitating interactions between research groups. These include the University's Protein Structure Facility, Electron Microscopy Facility, a DNA Synthesis Core, a Molecular Biology Core, and a Gas-Chromatography/Mass Spectrometry Facility. Individual faculty research laboratories are well-equipped for modern research, and these are many common-use facilities, including instrument rooms, reading rooms, conference rooms, tissue culture areas, preparation rooms, and a stockroom.
Graduate Programs

Master of Arts

The master's degree in hospital and health administration requires two years of full-time study. The curriculum is designed to develop the knowledge, attitudes, and skills needed to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care agencies, planning agencies, consulting firms, and other health-related organizations.

During the first year, students are exposed to the social, political, economic, and financial aspects of hospitals and health care organizations. The concepts, tools, and techniques of effective managerial decision making, planning, and control are also introduced.

In the second year, students learn management concepts and techniques in areas related to their own special interests and career objectives.

The program of study utilizes an interdisciplinary approach requiring a minimum of 36 semester hours of graduate work. Required courses, representing a core of disciplines and areas of knowledge, are carefully sequenced to establish a coherent approach to learning. These courses are as follows:

80:101 Introduction to Health Care Organization 3 s.h.
80:201 Health Services Administration I 3 s.h.
80:202 Health Services Administration II 3 s.h.
80:203 Health Services Administration III 3 s.h.
80:204 Health Services Administration IV 3 s.h.
80:205 Issues in Health Management and Policy 3 s.h.
80:206 Accounting in Health Administration 3 s.h.
80:212 Health Economics I 3 s.h.
80:213 Financial Management of Health Institutions I 3 s.h.
80:214 Quantitative Methods in Health Administration I 3 s.h.
80:223 Quantitative Methods in Health Administration II 3 s.h.
80:224 Health Information Systems 3 s.h.
80:226 Health Care Marketing Research Methods 3 s.h.
80:227 Legal Aspects of Health and Medical Care 3 s.h.

Students are encouraged to enroll in courses offered by the colleges of Business Administration, Engineering, Education, and Liberal Arts, in addition to courses offered by the program.

A thesis is optional for the master's degree. Successful completion of comprehensive examinations is required in the final semester. A thesis is recommended for students intending to pursue doctoral studies.

Five-Year Program

The University of Iowa is the only institution in the nation that offers a five-year program in hospital and health administration. This option, which was launched with a grant from the W.C. Kotting Foundation, enables students to complete their baccalaureate and master's degrees in five years rather than the usual six.

To be eligible for admission to this program, students must complete all general requirements for a baccalaureate degree at their undergraduate institution by the end of the summer session of their junior year. This includes both major area requirements and the program's prerequisite courses in accounting and management.

During the senior year students are expected to execute the program in hospital and health administration as an undergraduate. After successfully completing the first year of study, the bachelor's degree is conferred by the undergraduate institution. Students are then admitted formally to The University of Iowa Graduate College. The master's degree is conferred at the completion of the second year of study.

Because students are required to complete general graduation requirements and the prerequisites of the program prior to admission, it is advisable to express interest in the freshman or sophomore year, and to apply during the sophomore or junior year.

Joint Programs

Students who wish to pursue an integrated program leading to a graduate degree in hospital and health administration and a graduate degree in another field are encouraged to do so. Joint programs usually require three years of full-time study, and students must satisfy the requirements of each program in order to earn both degrees. Joint programs currently are offered with the College of Business Administration (M.B.A.) and the Department of Urban and Regional Planning (M.A.). Other alternatives may be established on an individual basis.

Students interested in a joint program should discuss their plans with both academic units and indicate their interest when submitting application materials.
Center for Health Services Research

The Center for Health Services Research (CHSR), the research division of the Graduate Program in Hospital and Health Administration since 1972, is an interdisciplinary unit at The University of Iowa for research on health and health care. With the coordination and support of the CHSR, faculty and staff from colleges and department programs throughout the University investigate the organization, delivery, efficacy, and financing of health care services. CHSR interests embrace a broad spectrum of perspectives and disciplines, including economics, geography, organizational behavior, psychology, operations research, sociology, government, medicine and environmental and clinical medicine. Through its research activities the center promotes links among health organizations throughout the Midwest. CHSR also frequently exchanges with professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community. Master's and doctoral students from the program are encouraged to become involved in the center's projects and activities.

Veterans Administration Health Services Research and Development Field Program

Program faculty and students also are active in research activities at the Veterans Administration Health Services Research and Development Field Program. The program, headquartered at the U.S. Veterans Administration Medical Center, serves as a site of collaboration between the Veterans Administration Medical Center and The University of Iowa.

Alumni Association

As active Alumni Associations support the program in a number of important ways, including consultation and fund development. Of particular interest to students is the association's function as a network for new entrants into the profession. Students are encouraged to develop relationships with alumni who serve as adjunct lecturers, guest speakers, and as preceptors for residences and fellowships.

Each fall the program sponsors the Executive Symposium, an institutional session for several hundred health care executives featuring presentations by leaders in the health care field. During the two-day symposium students have the opportunity to make and speak with practitioners from across the nation.

Admission

Applicants to the master's program are required to hold a baccalaureate degree (except for early admission applicants). A 2.0 grade-point average on a four-point scale is desirable. Combined GRE verbal and quantitative scores above 1000 are preferred. Prerequisites include one course in accounting and one in management. Courses in business, economics, and statistics are strongly recommended. Campus visits are encouraged and personal interviews usually are required prior to admission.

Financial Aid

The program attempts to provide financial aid to all students who request it. Accordingly, a number of part-time research assistantships that provide a stipend and in-state tuition rates for out-of-state students are awarded each semester. Questions regarding financial aid should be directed to both the program and the Office of Student Financial Aid.

Courses

80:201 Introduction to Health Care Organization 3 s.h.
80:210 Management of Health Services in the United States: analysis of social, political, psychological, and economic issues that affect health services. Determinants of costs, markets, and types of health services available. Methods of financing.
80:231 Health Services Administration I 3 s.h.
80:232 Health Services Administration II 3 s.h.
80:233 Health Services Administration III 3 s.h.
80:240 Advanced Health Services Administration 3 s.h.
80:241 Health Services Administration IV 3 s.h.
80:242 Health Services Administration V 3 s.h.
80:243 Health Services Administration VI 3 s.h.
80:244 Health Services Administration VII 3 s.h.

Minor

The student must complete at least 12 semester hours as a discipline such as sociology, political science, psychology, management science, or economics.
Courses
45.281 Nutrition Seminar 3.0 h. Presentations of research articles. Offered on
anniversary.
45.282 Nutrition Seminar 3.0 h. Human nutrition: A four-week project. Offered spring
semester.
45.283 Clinical Nutrition 4.0 h. Energy, protein, nutrient-nutrient and
drug-nutrient interactions; special issues of local interest; exploration of
professional individuals. Offered spring semester of even years.
45.284 Clinical Nutrition 4.0 h. Assessment of nutritional status, the age-sex
factor, pregnancy, and selected disease states. Offered on advanced
nutrition.
45.285 Projects in Nutrition 2.0 h. Offered spring semester of even
years.
45.287 Nutrition Research 4.0 h. Offered spring semester.
45.288 Nutrition Research 3.0 h. History of nutrition research, animal nutrition studies,
environmental toxicology, design, feeding methods, sample
collections and handling, statistical analysis, report writing, and
preparation of abstract. Offered fall semester.

Internal Medicine
Head: Francois M. Smith
Professors: Ingritt M. Ahlborn, Mark L.
Aronson, Robert C. Atkinson, Robert S. Bar-George, N. Behlet, C. Patrick Burns, Jamie
Chaffinberry, Robert A. Clark, James A. Chilton
Richard L. Dejohn, Gerald Dobson, John W.
Elliott, Annette Fite, Donald H. Haywood, Kenneth A.
Hob, Gary W. Hoenigspieler, John S. Kukla,
Richard E. Kreber, Michael L. Marcus, Allen L.
McK. H. Richardson, Harold P. Schell, Philip G.
Schroeder, Ian M. Smith, Raymond Spicker, John B.
Storin, Robert W. Sarnsery, Ernest T. Theisen,
Robert R. Wrest, Michael D. Zuniga.
Professors emeriti: William D. Bean, Richard D.
Eilbert, Robert C. Hertl, Lewis A. January, Paul
Sawicki, William W. Spahn.
Associate professors: Jules Ballas, Donald
Berg, John F. Bialy, Charles A. Blaisdell, John D.
Bray, William P. Dohle, J. Jeffrey Reddy, David C.
Funk, Daniel T. Frist, Gary D. Gohdes, Roger D.
Gorgas, Barry H. Grafton, Nancy S. Getzler,
Charles M. Hales, Jameson C. Harvey, David J.
Klooster, Douglas R. Labrecque, William J.
Lawrence, John M. Low, Donald R. Medici,
John H. Machacek, James B. Mattson, Michael
Mannone, Konrad T. Schuelke, Michael W. Urban
David J. Bartusch, Jeanne M. Smith, M. Paul
Shriver, John J. Storer, John E. Voelkel
Michael J. Weicher, Andrew Yim.
Assistant professors: Jennifer A. Anderson, William G.
Bottiger, Alan J. Bynum, Thomas R.
Caudle, Jeffrey L. Cochlin, John J. Cowley,
Robert R. Felder, Board D. Feldman, Robert B.
Fred, David G. Hinkley, Mary R. Johnston, Lawrence B.
Kamrad, Robert W. Kern, Michael G. Kotler,
Leslie V. Kuykendall, Stephen S. McGowan, Pope D.
Mooney, Michael J. Mufford, Stanley N. Phillips.
William M. Peasley, Charles L. Riggs, A. John
Silverstein, Robert L. Stoller, Michael J. Timony,
Larry S. Tolimus, Louis Viscusi, Robert W.
Wilson.
Instructors: Michael W. Peterson, Jack T.
Stapleton, Mary E. Wilcox.
Associate instructors: Sheldon L. Brownstone, David A.
Tuckerman, Richard L. Grover, Louis L. Castagna,
Michael J. Flanagan, Ellen E. Groten, Joel A.
Groten, Darrell C. Gore, David D. Guttenberg,
Robert J. Heygeman, Richard A. Hettrick, Frederick
Jenkins, Joseph E. Knapp, James E. Rascoe, Steven
A. Sharp, Janise K. Toleban, Brynn VanDerven,
John F. Vickers,3 and Brian M. Wilcox.
Clinical associate professors: Oscar C. Benot, May
Christensen, John F. Fischman, William F.
Josephson, Udora Kabat, Karl Laren, Erich
Levitz, Edwin Motto, Thomas R. Nettman.
William C. Rosefeldt, C. E. Schlieker, Stefan
Stolpo, Goodwin in St. Lawrence Region.
Richard B. Tripelet, Charles W. Turck, James T.
Vogt, and James W. Wogujo.
Clinical assistant professors: Kenneth
Bentler, Jane A. Bonne, John Taylor, Robert
Boyett, W. Brian, Ryan E. Boyd, Thomas M.
Brown, Michael Chanda, James Cozell,
David Groten, Ethan Hask, Robert H.
Hartman, Michael D. Laff, Michael D.
Laffan, Robert Liborg, Richard Mar, Louis
Manivel, Samuel McQuillen, David Menko,
John Miller, Neil Pruzansky, James Pons, Edward
Resin, George River, Craig Stahl, Joseph
Thomas M., and Gregory Tilman.
Clinical instructors: Robert H. Caplan, Philip J.
D'Acquisto, Jane E. Cramer, Ralph M.
Eisenmenger, Robert C. Laster, Jack M.
Letchup, Larry J. Logon, Kenith J. Newcomer, Edward
N. Oates, Edward W. Riggs, and
Thomas L. Zuhring.

The Department of Internal Medicine is concerned with the diagnosis, prevention, and
treatment of diseases of adults. The educational, patient-care, and research activities of the
department cover all facets of internal medicine, including general internal medicine and primary care as well as the specialized areas of allergy-immunology, cardiology, clinical pharmacology, oncology, endocrinology, pulmonary medicine, gastroenterology, hematology, infectious diseases, renal and hypertension disease, and rheumatology.

The department is organized into divisions.

Members of the department bear a major share of the teaching effort. The department appreciates the introduction to Clinical Medicine, in which students begin gaining a broad understanding of biology, symptoms, complications, prevention, and treatment of diseases. Students are taught to recognize symptoms, perform physical examinations of the disease and are instructed in the principles of diagnosis and treatment.

In the first-year students are assigned for nine weeks to medical services at The University of Iowa Hospitals and Clinics and Veterans Administration Medical Center. Under the guidance of the Department of Internal Medicine house staff and faculty members, they actively participate in members of the ward team in the diagnosis and treatment of disease. In the fourth year students may select a clinical experience in a number of teaching hospitals, including the department's own, during the period of two to three years. These permit

Graduate Program
The department offers a Master's degree and an approved residency program of high
quality. In addition, most of the department's specialty divisions offer clinical and research opportunities for graduate students during the period of two to three years. These permit
Financial Aid

Trainees admitted to the first year of the program compete for stipend and fellowship awards provided by the Medical Scientist Training Program grant to the University of Iowa from the National Institutes of Health (NIH). Support from this grant and institutional sources is continued for up to six years, provided the trainee's achievement and progress remain satisfactory. NIH stipends are supplemented during the graduate phase of the program. Trainees admitted without NIH awards are eligible for equivalent equivalent nonfellowship training awards beginning at the end of the second year of the program and continuing for four years. Support for trainees admitted to the advanced standing in the program is arranged on an individual basis.

Admission

Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa. Iowa. Trainees are expected to 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, applicants should demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates. Applications are accepted from students requesting admission in the first year of the program. No application is considered in response to applications for admission, advanced standing from individuals currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures

The University of Iowa College of Medicine is a participant in the American Medical College Application Service (AMCAS). Application materials are accepted from students who are planning to enter in the fall term. Application materials are due on or before June 15. At the same time, applicants should request a separate Medical Scientist Training Program application from the Program Office, 1-VAB Bowers Science Building, The University of Iowa, Iowa City, Iowa 52242. Applications to the Medical Scientist Training Program are reviewed by the Program Selection Committee after AMCAS applications are received.

The deadline for receipt of applications is December 1. All applications should be submitted as early as possible to facilitate review by both the College of Medicine Intercampus Committee and the Program Selection Committee. The early decision plan on the basis of AMCAS qualifications of applicants for the fall of 1991. All applications received on or before the deadline date will be considered.
Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog

Microbiology

Head: Irving P. Crenshaw


Associate professors: Steven C. Anig, Charles J. Cox, Charles Ester (Pathology), Jack E. Rodrigue, George V. Satterfield, Donald H. Waker

Assistant professors: Morris G. Davis (Pathology), Luci D. Gehr

Degrees offered: D, M.S., Ph.D.

Undergraduate Program

See "Microbiology in the College of Liberal Arts" section of the Catalog

Graduate Programs

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Seven areas are included in the program: biochemistry, pathogenic bacteriology, microbial genetics, immunology, microbial physiology, internal mycology, and animal virology. Several of these specialized areas involve interdisciplinary research within and outside the department, so students receive broad experience during their course of study.

Students working for the Ph.D. degree may obtain an M.S. degree during their graduate work, or proceed directly toward the Ph.D. degree. All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

Incurring students choose a research advisor who serves as chair of the student's advisory committee. The committee assists the student in planning a program of study and reviews, from time to time, the student's progress in research. The department cooperates with other departments in the various colleges on campus, allowing ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, and electron microscopy are taught on an interdepartmental basis.

Master of Science

Candidates for the M.S. degree are required to take a minimum of 12 semester hours of microbiology courses in three of the seven different subdisciplines available in microbiology. Students may substitute a course taken on internship (ATLV The University of Iowa or elsewhere) for the course requirement, upon obtaining approval from the M.S. committee. Additional course requirements or selections will depend upon the interests of the student and the advice of the examining committee. A thesis based on the student's own research is required. The thesis must be defended satisfactorily in an oral examination.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of four subdisciplines (of the seven subdisciplines available in microbiology) in 15 semester hours of course work in two different areas. Students may substitute a course taken previously (ATLV The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. A student also must pass a comprehensive examination and write a thesis based on his or her research. The thesis must be defended satisfactorily in an oral examination.

Facilities

The department shares the Wilson Science Building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Admission

Prospective graduate students should contact the department for general admission requirements of the Graduate College. Departmental requirements include a review and summary of the literature by the faculty before a student is admitted. Before beginning graduate work, the student must complete courses in biology, chemistry (inorganic, organic, and quantitative analysis), mathematics (up to calculus), and physics. Students admitted without the above course work must take these during the first year of graduate school. The student should have a grade-point average of 2.7 or better to be admitted to the graduate program in microbiology.

Certified specific curricula, such as the "Biotechnology Training Program," are intended for advanced students who demonstrate standards higher than those described above. Only applicants with a grade-point average of 3.0 or higher are considered for these programs, and it is permissible for the applicant to have completed several years of post-baccalaureate training before applying. The course of study leading to the Ph.D. in microbiology with emphasis in biotechnology also may differ somewhat from that of the other subdisciplines. Inquiries may be made to the program or departmental chair.

Courses

61-600 Cooperative Education Internship 0-4 h.

61-622 Medical Microbiology 4 h.

Principles and methods essential to studying microorganisms, their isolation and identification. Principles include classification, current methods in identification, characteristics of the disease and its control. Prerequisites: MATH 40 and admission to College of Medicine or consent of course director.

61-623 Hebrew Microbiology 4 h.

Introduction to medical microbiology covering and applying to the clinical problem, including anatomy, pathophysiology, and physiology. Open only to dental, veterinary science, and pharmacy students.

61-637 Survey of Immunology 3 h.

Introduction to the immune system, histocompatibility, and molecular immunology and their application to clinical problems, including the structure of the T cell or B cell, with emphasis on tissues (departments of Microbiology, Immunology, Pathology, and others). Prerequisite: 61-623 with a grade of "C" or above or an introductory course in cellular or molecular biology that includes an understanding of fundamental cellular and molecular biology.

61-637 General Microbiology 3 h.

Introductions to the biology of procaryotic and eucaryotic microorganisms, including microbial diversity, medical, food, and environmental microbiology. Laboratory accompanies textbook; includes techniques in molecular, stanine and applied aspects of microbial organisms.

61-659 Parasitic Bacteriology 4 h.

Diagnosis of vector-borne infections, with emphasis on mechanisms of pathogenesis and laboratory methods used for identification and epidemiology of laboratory and clinical pathogens. Prerequisite: 61-637 with a grade of "C" or above and consent of instructor.

61-660 Medical Physiology 3 h.

Cellular and molecular structure and function, gases, energy metabolism, embryology, and cellular mechanisms of autonomic and endocrine systems. Prerequisite: 61-677 with a grade of "C" or above and consent of instructor.

61-661 Problems in Microbiology 3 h.

Research in current problems in microbiology. Can be taken twice over a period of 3 years but not by undergraduates, and during other semesters it will carry credit for graduate students. Prerequisite: 61-677 with a grade of "C" or above.

61-663 Environmental Microbiology 4 h.

61-666 Immunology 4 h.

61-681 Disaster Microbiology 4 h.

61-682 Infectious Microbiology 4 h.

61-683 Laboratory Immunology 4 h.

Principles and methods of medical techniques that identify microorganisms, and the laboratory techniques used in their identification. Prerequisites: 61-677 and consent of instructor.

61-684 Laboratory Virology 4 h.

61-684 Laboratory Virology 4 h.

Fundamental and practical principles of viral virology and the laboratory techniques used to study virus infections. Prerequisites: 61-677 and consent of instructor.
Neurology

Arrington Heard: Robert L. Rudolph
Professor: Harold P. Adams, Jr., William E. Bell
(Pediatrics); Antonio Dammico, James J. Cotterell,
Shawn G. O'Brien, Richard Frickman, Jim Evers,
Ronan Lim, Robert Reddy; Gary Van Hoeppn
(Dermatology), Thora Vanneman
(Pediatrics)

Professors emeriti: Arthur L. Berton
(Medicine), D. L. Saha

Associate professors: James R. Sadiq (Pediatrics),
Peter Beach (Pediatrics)

Assistant professors: Scott R. Skiles, Neil
goodenough; Matthew R. Kimmel

Adjunct assistant professor: Paul Farquhar
(Division of Neurology, University of Connecticut)

Nursing: The training of health science
trained with diagnosis and management
of disorders of the brain, spinal cord,
peripheral nervous system, and muscle.
Training in pharmacology and treatment,
carefully integrated with patient care, has
long been a significant function of the
department.

The department offers clinical and clinical
research training in third- and fourth-year
medical students, contributing to their
education and training in the care of
the Doctor of Medicine degree. An active three-
year approved residency program
qualifying physician trainees for board
certification in neurology is a major aspect
of departmental activity, especially in
electrophysiology, pediatrics, neurology,
neurology, neuropathology, and neurology.

Important interest of the faculty centers
pediatric neurology, medical and surgical
experience, and clinical electrophysiology.
Neurology, pediatrics, and neurology
in this training. The department also
specializes in the research of neurology to
candidates for the Doctor of Philosophy
degree in clinical neurology.

Clinic Robert E. Fullova
Professor of Neurology (Speech Pathology
and Audiology); Nancy C. Anderson
(Pediatrician); Barry R. Blaustein
(Pharmacologist), Michael J.
Brody (Pharmacologist), Elizabeth M. Burns
Graduate Program

The Neuroscience Program is designed to provide a multidisciplinary and interdisciplinary approach to graduate education and research training aimed at understanding structure, function, and development of the nervous system and its role in behavior.

Because of the interdisciplinary nature of neuroscience, students from diverse backgrounds of entering students, the program provides considerable flexibility in curriculum structure. The plan of study for each student is developed to provide appropriate coursework as well as a selection of elective courses appropriate to individual training objectives.

The curriculum of the Neuroscience Program is based on two primary components. The first is to provide a sequence of required courses that ensure graduate students a broad and comprehensive exposure to the conceptual and experimental foundations of modern neuroscience. The second is to provide a flexible program of electives and advanced training that, while taking into account the multidisciplinary nature of neuroscience, permits in-depth study within any of its five subdivisions: molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience.

Requirements

Background Courses

Students are expected to complete at least 3 semester hours in each of the following: biochemistry; general physics; cell biology, and statistics. As necessary, these requirements may be fulfilled by an approved combination of existing courses at The University of Iowa. These background course requirements 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 prior to entering the Neuroscience Program.

Neuroscience Courses

Six required courses form the core of the neuroscience graduate curriculum. These are 132/234, 132/244, 132/258, 132/284, and 132/298. In addition, students register for research credit (132/295) each semester.

Elective Courses

All students in the Neuroscience Program are required to take three or more advanced elective courses, for a total of at least 6 semester hours. These are selected from an approved list of courses offered by the departments of anatomy, biology, pharmacology, physiology and biophysics, psychology, and other departments of the College of Graduate and College of Medicine. Effective courses are to be taken from at least two of the five subdivisions of the Neuroscience Program. Students should select courses from the subdivisions representing their area of specialization, and at least one course from a related subdivision.

Financial Aid

Graduate students in the Neuroscience Ph.D. Program receive fellowships and tuition support from institutional and extramural sources, including a cellular neuropharmacology training grant from the National Institutes of Health.

Facilities

Training is conducted primarily in the laboratories and teaching facilities of the graduate departments of anatomy, biology, biochemistry, pharmacology, physiology and biophysics, psychology, and speech pathology and audiology, and the clinical departments of neurology and psychiatry. Faculty laboratory and central research facilities available to students include those for intracellular and extracellular recording, histochemistry and immunocytochemistry, electrophysiology, computer-activated cell sorting, cellular and subcellular biochemistry, cell, tissue and organ culture, operant and classical conditioning, molecular biology, and behavioral genetics.

Obstetrics and Gynecology

Hsiao, B.M. Rika

Professor: F.K. Chang, R.P. Galbraith


Clinical assistant: W. Doig Edgerton, D.W. Wipshick

Associate professor: B. Anderson, D.W. Laude, C.A. Griffith, L.R. Hagen, W.M. Vaner, E.A. Huppert

Clinical associate professor: H. Celentano, J. Ciosek, L. Katz, L. Martin

Clinical assistant professor: C. Johnson, J. Johnson, J.P. Lafrate, C.P. Wethey

Admission

Individuals who want information about predoctoral and postdoctoral training opportunities in the neuroscience should contact the program office for application materials at the following address:

Neuroscience Program Office, 5-248 Brown Science Building, The University of Iowa, Iowa City, IA 52242.
Programs

Course Work for M.D. Students

The courses in anatomy and physiology are designed to give M.D. students a comprehensive survey of biological medicine. This is done through a series of didactic lectures, short assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (164) Clinical Osseous and Gynecology) gives the student core knowledge, skills, and attitudes needed to provide primary health care to women patients.

The department offers fourth-year students a variety of electives that provide advanced training in the special areas of anatomy and physiology. In addition to clerkships at the University of Iowa Hospitals and Clinics, these electives include rotations at Broadlawns Medical Center, Des Moines, and the Gundersen Clinic, LaCrosse, Wisconsin.

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. The resident is assigned to the various divisions and clinical services of the department for care of both hospital inpatients and outpatients. Additional training is obtained in maternal clinics in Waterloo, Des Moines, Iowa City, and Davenport. During the third year, the resident spends two months at Iowa Methodist Hospital and Broadlawns Medical Center in Des Moines, one month at University Hospital in Iowa City, and one month in Davenport. The resident is trained in general and anesthesiology, gynecologic surgery, office gynecology, reproductive embryology, gynecologic oncology, family planning, and endoscopic procedures.

Courses

604 Clinical Anatomy and Physiology

Clinical anatomy and physiology are integral to understanding the body as a whole. This course provides an overview of normal anatomy and physiology, as well as concepts of diagnostic techniques and therapy. Special emphasis is placed on the student's ability to take notes and ask questions.

614 Advanced Osseous and Gynecologic Clerkship: Iowa City

Weekly rotations in gynecology, obstetrics, and gynecology are required of all residents. In this clerkship, students will gain experience in the management of gynecologic and obstetric patients.

615 Advanced Osseous and Gynecologic Clerkship: Des Moines

Students will gain experience in the management of gynecologic and obstetric patients.

616 Advanced Osseous and Gynecologic Clerkship: Davenport

Students will gain experience in the management of gynecologic and obstetric patients.

Ophthalmology

Acting head: Howard E. Kuder


Assistant professors: Robert Bolle, James C. Frost, David T. Tse

Associate professors: Christopher F. Bledsoe, Ronald V. Romig, Jeffrey A. Nadel

Ophthalmology is a medical and surgical specialty concerned with research, diagnosis, and treatment of diseases of the eye and its adnexa, including correction of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology, pediatric ophthalmology, retinal disorders, glaucoma, neuro-ophthalmology, ophthalmology, cornea, and external diseases, vascular diseases, plastic surgery, contact lenses and intraocular surgery, and medical ophthalmic photography.

The teaching program is directed toward the training of medical students and resident physicians. It emphasizes a scientific approach to the problem solving in diagnosis and treatment.

The residency program lasts three years, culminating in qualification for the examination of the American Board of Ophthalmology.

 Facilities

The department maintains a research laboratory for the study of vision, including visual and auditory physiology, electrophysiology, and psychophysics. The laboratory offers state-of-the-art facilities for research and training in visual and auditory physiology.

Orthopedic Surgery

Head: Harold R. Cooper


Postgraduate: Ignacio V. Pennek

Associate professors: William H. Thomas, Thomas A. Bowers, Charles R. Clark, Merick P. Sundstrom

Associate professors: James W. Weir, James M. Pennek

Clinical professors: Richard C. Johnson, James E. Purcell

The department offers two types of postgraduate training—a five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery and sciences related to the neuromusculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopedic careers.

Oral Surgery

Head: Harold R. Cooper


Postgraduate: Ignacio V. Pennek

Associate professors: William H. Thomas, Thomas A. Bowers, Charles R. Clark, Merick P. Sundstrom

Associate professors: James W. Weir, James M. Pennek

Clinical professors: Richard C. Johnson, James E. Purcell

The department offers two types of postgraduate training—a five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery and sciences related to the neuromusculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopedic careers.
Training in this program is designed for students entering clinical or academic careers in Allergy Immunology. Graduates are prepared to conduct research and provide patient care for a variety of pediatric and adult disorders. Students are trained in the basic principles of immunochemistry, microbial immunology, and clinical immunology. They also gain experience in the diagnosis and treatment of allergic and infectious diseases.

**Clinical Immunology**
- **Program Overview**: This program is designed to provide excellent clinical training in clinical immunology.
- **Goals**: The program aims to prepare students for careers in academic medicine, clinical research, and patient care.
- **Curriculum**: The curriculum includes courses in basic immunology, clinical immunology, and specialty training in areas such as allergy, autoimmunity, and infectious diseases.
- **Research Opportunities**: Students have the opportunity to engage in research projects under the guidance of faculty members.
- **Career Outcomes**: Graduates are well-prepared for careers in academic medicine, clinical research, and patient care.

**Otolaryngology—Head and Neck Surgery**
- **Program Overview**: This program is designed to provide excellent clinical training in otolaryngology—head and neck surgery.
- **Goals**: The program aims to prepare students for careers in academic medicine, clinical research, and patient care.
- **Curriculum**: The curriculum includes courses in basic otolaryngology, clinical otolaryngology, and specialty training in areas such as head and neck surgery.
- **Research Opportunities**: Students have the opportunity to engage in research projects under the guidance of faculty members.
- **Career Outcomes**: Graduates are well-prepared for careers in academic medicine, clinical research, and patient care.

**Graduate Program**
- **Program Overview**: The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology.
- **Goals**: The program aims to prepare students for careers in academic medicine, clinical research, and patient care.
- **Curriculum**: The curriculum includes courses in basic otolaryngology, clinical otolaryngology, and specialty training in areas such as head and neck surgery.
- **Research Opportunities**: Students have the opportunity to engage in research projects under the guidance of faculty members.
- **Career Outcomes**: Graduates are well-prepared for careers in academic medicine, clinical research, and patient care.
phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars designed to the practice of osteomyelography and its related fields.

To complete the requirements for the Master of Science degree, the student must earn at least 30 semester hours of credit, consisting of which must come from the basic science group, and must present and defend a thesis. Students capable of additional work may take elective courses.

A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized college of medicine and must have completed one year of general surgical training in an approved program.

Courses

06-3 Clinical Osteomyelography

06-10 Clinical Intervention in Osteomyelography

06-10 Basic Principles of Facial Plastic and Aesthetic Surgery

06-3 Special Care in Osteomyelography

06-3 Basic Osteomyelographic Surgery

06-3 Specialty in Osteomyelography

11-20 Clinical Conference in Osteomyelography

11-30 Examination of diagnostic methods and criteria for management of special patients. May be repeated.

11-30 Clinical Osteomyelography

11-30 Examination of patients in areas of malocclusion, bony surgery, and orthodontics. May be repeated.

11-30 Special Care in Osteomyelography

Pharmacology

Head: Richard G. Lynch

Professor: Fred D. Dick, Michael R. Hart, Thomas H. Kent, Frederick P. Konets, George G. Pennock, Charles L. Plass, Earl J. Rose, Randal G. Stryker


Adjunct faculty: J. A. Schrijver, J. A. Sirca

Pathology

Head: Richard G. Lynch

Professor: Fred D. Dick, Michael R. Hart, Thomas H. Kent, Frederick P. Konets, George G. Pennock, Charles L. Plass, Earl J. Rose, Randal G. Stryker


Adjunct faculty: J. A. Schrijver, J. A. Sirca

Residency Program

The department is approved for 21 residency positions in pathology, covering a period of at least up to five years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Medical Center. There is systematic rotation through the various hospital services, including surgical pathology, cytopathology, clinical chemistry, medical microbiology, hematopathology, immunopathology, and transplantation center.

The department offers basic pathology courses to health science students as a clinical training program in medical technology; a master's degree program; residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and hematopathology; and postdoctoral training in cellular and molecular pathology.

Programs

Clinical Education in Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog

Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, biology, zoology, and medical technology, and trans students with medical and dental degrees.

The M.S. examination is given, but the department expects two tracks, one to provide a research background for academically oriented resident physicians and another for medical and dental students; the other for medical technologies that who wish to advance their training, usually by attending an institution in an area of laboratory medicine.

M.S. students participate in teaching patient care, and research through the instructional programs of the department, the service laboratories of the department and The University of Iowa Hospitals and Clinics, and faculty members' research laboratories.

Admission to the M.S. program requires a 3.0 grade-point average in science courses, a Graduate Record Examination (GRE) Aptitude Test combined verbal and quantitative score above 1000, an individual interview. A brochure describing departmental course requirements and giving examples of the major academic tracks is available on request.

Postdoctoral Training

The Department of Pathology offers a program in hematopathology for physicians who have completed at least two years of residency training in surgery. The postdoctoral traineeship consists of one
Fellowships are available in all of the ABP-approved subspecialties as well as in the major subdivisions of pediatrics. The programs are research and clinically oriented, encouraged development of knowledge and skills in the chosen discipline. Upon satisfactory completion of the program, fellows are eligible for the subspecialty requirements of the ABP in the subspecialty.

Facilities

The Department of Pediatrics is located in The University of Iowa Hospitals and Clinics, with infant and outpatient areas immediately adjacent to faculty offices and the pediatriic library. The inpatient service comprises more than 80 beds, and more than 21,000 patients are seen each year in the general, specialty, and continuity care clinics. Laboratories performing both clinical and research studies are maintained in the department.

The University hospital is available for the child with developmental disabilities, cerebral palsy, or mental retardation.

Courses

Pediatric Care and Developmental Care

Principles and practices of health maintenance and ill care of the newborn through the child with special care requirements. Emphasis on the role of the primary care provider. Undergraduate, graduate, and continuing education for professionals in pediatrics and related health care fields.

Prerequisites: A three-year program emphasizing clinical aspects of growth and development.

Pediatric Neurology

A six-week elective with emphasis on clinical and neurologic aspects of pediatrics. Includes various subspecialties, including pediatric neurology, infectious disease, and cardiology.

Pediatric Hematology

A six-week elective with emphasis on clinical and research aspects of hematology. Includes various subspecialties, including pediatric hematology, infectious disease, and cardiology.

Pediatric Endocrinology

A six-week elective with emphasis on clinical and research aspects of endocrinology. Includes various subspecialties, including pediatric endocrinology, infectious disease, and cardiology.

Pediatric Infectious Diseases

A six-week elective with emphasis on clinical and research aspects of infectious diseases. Includes various subspecialties, including pediatric infectious diseases, infectious disease, and cardiology.

Pediatric Oncology

A six-week elective with emphasis on clinical and research aspects of pediatric oncology. Includes various subspecialties, including pediatric oncology, infectious disease, and cardiology.

Pediatric Nephrology

A six-week elective with emphasis on clinical and research aspects of pediatric nephrology. Includes various subspecialties, including pediatric nephrology, infectious disease, and cardiology.

Pediatric Endocrinology

A six-week elective with emphasis on clinical and research aspects of pediatric endocrinology. Includes various subspecialties, including pediatric endocrinology, infectious disease, and cardiology.

Pediatric Neurology

A six-week elective with emphasis on clinical and research aspects of pediatric neurology. Includes various subspecialties, including pediatric neurology, infectious disease, and cardiology.

Pediatric Infectious Diseases

A six-week elective with emphasis on clinical and research aspects of pediatric infectious diseases. Includes various subspecialties, including pediatric infectious diseases, infectious disease, and cardiology.

Pediatric Oncology

A six-week elective with emphasis on clinical and research aspects of pediatric oncology. Includes various subspecialties, including pediatric oncology, infectious disease, and cardiology.

Pediatric Nephrology

A six-week elective with emphasis on clinical and research aspects of pediatric nephrology. Includes various subspecialties, including pediatric nephrology, infectious disease, and cardiology.

Pediatric Endocrinology

A six-week elective with emphasis on clinical and research aspects of pediatric endocrinology. Includes various subspecialties, including pediatric endocrinology, infectious disease, and cardiology.

Pediatric Neurology

A six-week elective with emphasis on clinical and research aspects of pediatric neurology. Includes various subspecialties, including pediatric neurology, infectious disease, and cardiology.

Pediatric Infectious Diseases

A six-week elective with emphasis on clinical and research aspects of pediatric infectious diseases. Includes various subspecialties, including pediatric infectious diseases, infectious disease, and cardiology.

Pediatric Oncology

A six-week elective with emphasis on clinical and research aspects of pediatric oncology. Includes various subspecialties, including pediatric oncology, infectious disease, and cardiology.

Pediatric Nephrology

A six-week elective with emphasis on clinical and research aspects of pediatric nephrology. Includes various subspecialties, including pediatric nephrology, infectious disease, and cardiology.

Graduate Program

The department offers an approved three-year residency program designed to prepare each trainee for a professional career in the broad field of pediatrics. The program meets the eligibility requirements of the American Board of Pediatrics (ABP).
Pharmacology

Head: W. Michael Craig

Assistant: Professor: Jeffrey Saba, Radrif Buttarag, Andrew Leung, F. Michael Craig, Gary R. Buttarag, Gerald Gebhart, John Harvey, R. Ken


Assistant: Professor: Ron. D. Frisbee, Mark J. Goldfarb

Degree offered: M.S., Ph.D.

The department provides professional training in pharmacology for health science students, offers a Master of Science program in clinical pharmacology and clinical toxicology for students with the M.D. degree, and offers a doctoral program in clinical and research experience.

For qualified graduate students, research and training programs are available in neuropharmacology, neurotoxicology, and the pharmacology of the cardiovascular and renal system.

The department participates with other departments in educational and research activities such as the Medical Scientist Training Program, the Physician Scientist program, the Biomedical Sciences Program, the Cell and Molecular Biology Program, the Core Center: Diabetes, Endocrinology, and the Cardiovascular Research Center.

The department pioneered the offering of pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions are 7:120 Drugs: Their Nature, Action, and Use. Emphasis on the mechanisms of drug action and the background for rational decisions concerning the use of drugs.

The department offers research training in all areas of pharmacology and toxicology at the predoctoral and postdoctoral levels, to prepare students for career opportunities in teaching, government, and industry.

Preparatory for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quartile.

Graduate Programs

Master of Science

In cooperation with clinical departments in the College of Medicine, the Department of Pharmacology offers a Master of Science degree program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide more emphasis on and training in the science of clinical pharmacology to residents in the various clinical specialties.

Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following core courses is mandatory unless specifically waived by the Department of Pharmacology faculty. Any of these core requirements may be waived at the request of the trainee if his or her advisor and the departments agree that the trainee has met them satisfactorily at a prior time.

1. Pharmacology Research
2. Pharmacology Seminar
3. Special Topics in Pharmacology
4. Biochemistry and Biostatistics
5. Toxicology
6. Clinical Toxicology
7. Clinical Pharmacology and Therapeutics Lecture Series

The trainee may audit 71.105 Pharmacology for Health Sciences: Medical, and may take additional courses in other or other departments appropriate to his or her program.

Eligibility for the M.S. degree in pharmacology requires demonstrated proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a research thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in pharmacology are as follows:

1. Pharmacodynamics
2. Pharmacology
3. Pharmacology for Health Sciences: Medical
4. Pharmacology
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100. Pharmacology

Financial Aid

Financial support is available for all predoctoral and postdoctoral students in pharmacology.

Courses

1. Pharmacology
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17.055 Pharmacy for Health Sciences: Medicinal
3 h.
Lecture course; general principles of pharmacology, pharmaceutical aspects of drugs, and correlation with therapeutic use. Offered fall semester. Prerequisites: PHY 2.101 and 9.016, or equivalent, and consent of instructor.

17.051 Pharmacology for Health Sciences: Dental
5 h.
Lecture course; general principles of pharmacology, pharmaceutical aspects of drugs, and correlation with therapeutic use. Offered fall semester. Prerequisites: PHY 2.101 and 9.016, or equivalent, and consent of instructor.

17.011 Pharmacology for Health Sciences: Respiratory
3 h.
Lecture course; principles of drug action and drug toxicity, antibiotics, corticosteroids, sedatives, anesthetics, narcotics, psychotropic agents, and other drugs. Offered fall semester. Prerequisites: PHY 2.101 and 9.016, or equivalent, consent of instructor.

17.020 Animal Physiology
3 h.
Lecture and laboratory; physiological processes of animals. Offered fall semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent.

17.021 Molecular Biology
3 h.
Lecture and laboratory; molecular biology of cells and organisms. Offered fall semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent.

17.031 Cell Biology
3 h.
Lecture and laboratory; cell biology of animals and plants. Offered fall semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent.

17.012 Toxicology
3 h.
Lecture course; general principles of pharmacology, with emphasis on drug-induced toxicity and the selection and monitoring of laboratory tests. Offered spring semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent, consent of instructor.

17.010 Advanced Pharmacology
3 h.
Lecture course; general principles of pharmacology, pharmaceutical aspects of drugs, and correlation with therapeutic use. Offered fall semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent, consent of instructor.

17.010 Advanced Pharmacology
3 h.
Lecture course; general principles of pharmacology, pharmaceutical aspects of drugs, and correlation with therapeutic use. Offered fall semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent, consent of instructor.

17.010 Special Topics in Pharmacology
Prerequisite: consent of department head.

17.010 Medical Biophysics
3 h.
Lecture course; general principles of pharmacology, pharmaceutical aspects of drugs, and correlation with therapeutic use. Offered fall semester. Consent of instructor required. Prerequisites: PHY 2.101 and 9.016, or equivalent, consent of instructor.
the knowledge and skills of medical and allied sciences are applied in an organized community effort to maintain and improve the health of the population. The Departmental research and teaching activities are conducted within the primary divisions: basic science, epidemiology, and occupational and environmental health. The division of biostatistics works closely with both clinical and basic science investigators throughout the health center in the initial design and subsequent analysis of research projects. They also work independently in studying problems of statistical theory. Concerns of the epidemiology faculty include health care organization and delivery, risk factors for disease in the general population, behavioral factors in disease, and the establishment and evaluation of disease control measures in the community. Occupational and environmental health faculty are concerned with factors in the physical environment that are related to disease. Of particular interest are the health problems of agricultural workers.

Examples of ongoing departmental resources and activities include: The State Health Registry of Iowa, which records in central files data on all cases of cancer that occur in residents of Iowa; the Aging Project, which examines health problems and needs of a representative segment of Iowa's elderly; the development, evaluation, and field testing of vaccines against echinococciasis (alveolar liver); the University Occupational Health Center; the Community Pasteur Project; and the Biostatistical Consulting Service. The department sponsored development of the Institute for Biomedical Medicine and Occupational Health, the first agency in the University's system dedicated to the study of the occupational health problems of the agricultural worker.

All program offerings are enhanced through affiliations with the University Hygienic Laboratory, the Environmental Health Service, the Graduate Program in Health Administration, and the Health Services Research Center.

Graduate Programs

The master's program offers a degree with emphasis on epidemiology, biometry, or community health. Admission to this community health track is limited to those who already are health professionals. The Ph.D. program is available with an emphasis in epidemiology, biometry, or environmental health.

While pursuing a degree program, students are expected to maintain a 3.0 grade-point average. In addition, students receiving 7 semester hours or more in a 9 credit grade in lower in departmental course work will be discontinued.

A joint master's option exists between the Graduate Program in Urban and Regional Planning and Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. or M.S. in Planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required. Also, applicants are required to specify on the application form the program (track) to which they are applying, forward three letters of recommendation, and submit a short description of why they want the degree and what are their professional goals.

Institute of Agricultural Medicine and Occupational Health

The Institute of Agricultural Medicine and Occupational Health is located at the Agricultural Medicine Research Facility on the Osage Ile Campus. Research, teaching, and extension activities concern the safety and health problems of Iowa industrial and agricultural workers. Areas of study include environmental toxicology, comparative medicine, industrial hygiene, occupational medicine, the Accident Prevention Laboratory, and the Iowa Pastizcic Epilepsy Studies Center.

Financial Aid

A limited number of research assistantships, traineeships, and tuition grants are available within the department.

Admission

Application deadlines are July 15 for fall semester. December 1 for spring semester, and May 1 for the summer session. These deadlines apply both to University of Iowa and to non-UCLA of Iowa students. Minimum grade-point average requirements are 2.7 for admission to the master's program and 3.0 for the Ph.D. Acceptable completion of the Graduate Record Examination (GRE) Aptitude Test is also required (the acceptable score for most students is a combined verbal and quantitative score of 1000). Also, it is required by the University Foreign Admissions Office that all non-U.S. citizens must complete the TOEFL (Test of English as a Foreign Language) (a minimum combined score of 550 is considered acceptable for foreign students by the department).

The applicant must have an undergraduate major or course background in science or mathematics, depending on his or her proposed program of graduate study. However, in order to be considered for admission to the master's program with emphasis on community health, applicants as a rule must already possess or be pursuing an advanced degree in the health sciences and must apply preventive medicine and environmental health principles to their respective professional activities. Applicants who meet the requirements for the M.S. or Ph.D. programs but who do not wish to work toward an advanced degree may be admitted on "professional improvement" status.

Courses

43-006 Cooperative Education Internship 3 cr.
0-8 sh. credit. Introductory study of environmental health professionals.

43-039 Man and the Environment 3 sh.
Human ecology: role of genetic and demographic factors in biological, chemical, physical, and sociological factors of environment and health. Life, illness on food and water relations in different communities. Comparative medicine, occupational medicine, toxicology, radiobiology, and environmental pollution; diseases of the various environments; transmitted to man, and effects of pollutants and urban and regional planning on health and disease. Offered fall semesters.

43-161 Dynamics of Health 3 cr.
Survey of current diseases of man in Western culture, with emphasis on causation, epidemiology, demography, methods of disease investigation, and prevention. Offered fall semesters.

43-218 Preventive Medicine 3 sh.
Introduction to epidemiology, clinical preventive medicine, occupational health, organization and delivery of health services, environmental health and public health emphasis on application of a wide variety of techniques to public health problems. Offered fall semesters.

43-219 Environmental Health 3 sh.
Survey of current diseases of man in Western culture, with emphasis on causation, environmental and biological factors of disease, and the effects of pollutants and urban and regional planning on health and disease. Offered fall semesters.

43-230 Biostatistics 3 sh.
Study of the mathematical theories and methods of biological, chemical, physical, and sociological factors of environment and health. Life, illness on food and water relations in different communities. Comparative medicine, occupational medicine, toxicology, radiobiology, and environmental pollution; diseases of the various environments; transmitted to man, and effects of pollutants and urban and regional planning on health and disease. Offered fall semesters.

43-250 Environmental Health 3 sh.
Survey of current diseases of man in Western culture, with emphasis on causation, epidemiology, demography, methods of disease investigation, and prevention. Offered fall semesters.

43-251 Preventive Medicine 3 cr.
Introduction to epidemiology, clinical preventive medicine, occupational health, organization and delivery of health services, environmental health and public health emphasis on application of a wide variety of techniques to public health problems. Offered fall semesters.

43-280 Principles of Epidemiology 3 sh.

43-281 Introduction to Biostatistics 3 sh.
Corequisite. Biostatistics I. Classical and statistical techniques for the analysis of binomial and normal distributions, sampling distributions, confidence limits and significance tests. Emphasis as a foreign language (minimum combined score of 550 is considered acceptable for foreign students by the department).

43-282 Design and Analysis of Experiments 3 sh.
Learning the principles and techniques of research design and experiment, selection and description of experiments, statistical methods for the analysis of qualitative and quantitative data, and the interpretation of statistical results. Offered fall semesters.

43-283 Introduction to the Design of Study 3 sh.
Designed to meet the needs of researchers, students, professionals, graduate students and non-graduate students interested in the design of experiments, research and experimental methodology. Topics include experimental design, statistical analysis, and the interpretation of results. Offered fall semesters.

43-284 Ecology and Biometry 3 sh.
Basic principles of mathematics and graphical interpretation of experimental biological data. Includes basic principles of sampling techniques, basic statistical tests, and the interpretation and evaluation of data. Offered fall semesters.

43-285 Environmental Health and Policy 3 sh.
Survey of current diseases of man in Western culture, with emphasis on causation, epidemiology, demography, methods of disease investigation, and prevention. Offered fall semesters.

43-286 Biostatistics II 3 sh.
Survey of current diseases of man in Western culture, with emphasis on causation, epidemiology, demography, methods of disease investigation, and prevention. Offered fall semesters.
experiences are available at The University of Iowa Hospitals and Clinics and at the Iowa City Veterans Administration Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Security Medical Facility at Oakdale, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Mental Health Institute at Independence.

The department offers an approved two-year residency in child psychiatry. The department staff is actively involved in genetic and family studies of psychiatric disorders, and in research in the fields of genetics, child and adolescent psychiatry, neurochemistry, neuropsychology, and psychosocial aspects of behavior.

Many opportunities are available for students and residents to participate in research. The basic science areas of neurochemistry, neuropsychology, and electrophysiology offer additional opportunities to students and residents for special study and research. The clinical areas of psychology, child psychiatry, and group psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses

T3:48 Psychotherapy for Physician Assistant Students
T3:44 Psychiatry Center for Physician Assistant Students
T3:220 Research in Psychiatry
T3:213 Neuropsychology and psychiatric science which has formed a strong interest in the clinical and experimental problems related to psychiatry.

T3:231 Psychotic in Psychiatry

Courses Open Only to Medical Students

T3:02 Primary Care
T3:03 Introduction to Medicine
T3:22 Hospital Psychiatry, Veterans Administration Hospital, Chicago
T3:23 Pediatric Psychiatry, Pediatric Hospital, Children's Services
T3:27 Emergency Room Psychiatry, Broadlawns Hospital, Des Moines
T3:30 Correctional Psychiatry, Iowa Security Medical Facility, Ottumwa
T3:20 Emergency Psychiatry, Broadlawns Hospital, Des Moines
T3:06 Psychiatric in Psychiatry

Special Programs

Postdoctoral training is available by arrangement with the program chair and individual faculty members.

Facilities

The Radiation Research Laboratory has two X-ray generators and other radiation sources, including a 15,000 Curie Co-60 irradiator. Students and staff members also have access to other radiation sources, such as the Co-60 gamma source and the linear accelerators in the Department of Radiology and the reactor of the biology division at Aberdeen National Laboratory. The Radiation Research Laboratory has a variety of radiation detectors and counters, including gamma and liquid scintillation counters and a small animal whole-body counter. The laboratory also has ultraviolet spectrophotometers, various types of equipment for chromatography and electrophoresis, an automatic cell counter and particle size, tissue culture facilities, and facilities for preparing histological sections of tissues—fixed or frozen—and autoradiographs.

Three air-conditioned rooms provide convenient housing for the small laboratory animals used in research and teaching.

Financial Aid

Graduate students are supported as research assistants when possible from funds available through research grants and contracts, or as teaching assistants from departmental funds. Some awards also are available to graduate students and postdoctoral students through the U.S.P.H.S. Research Service Award program to support training in biomedical radiation research. Individual postdoctoral awards also are available when they are expected by the candidate and his or her faculty sponsor.
exercises interspersed with operating room experience. Lectures and conferences are scheduled regularly on specific topics. Special courses are selected topics of surgical interest. Residents are offered a variety of clinical experiences and clinical experiences are available to individual fourth-year students by special arrangement with the faculty.

Faculty
Specialty strengths are centered in the fields of pathophysiology and problems of severe burns, organ transplantation, surgical control of malnourished obesity, inflammatory bowel disease, biliary tract disease, pediatric surgery and plastic surgery. The thoracic, cardiovascular and neurological surgeons have particular expertise in clinical management of the spectrum of diseases in their specialties.

Facilities
The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit in the state, providing adequate patient material for both clinical and basic science research.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal surgery, tissue culture, gynecology, genitourinary, general surgical, plastic surgery, transplantation, organ preservation, cardiovascular surgery, and neurosurgery and oncology.

Courses
75.1 Basic Emergency Skills 1 h.
Symposium, private practice in emergency medical techniques emphasize on practical exercises and applications in emergency situations.

75.2 Vascular Research 3 h.
This course, usually taken by medical students, is designed to acquaint medical students with aspects of research methodology for studies of vascular disease. The course is limited to students who have completed the clinical course in medicine. Emphasis is on laboratory research and its relation to medical problems.

75.100 Emergency Room Service for Physicians Assistant Students 4 h.
Clinical experience in the emergency service under close supervision of house officer or attending physician. Emphasis on recognition of the emergency situation, patient evaluation based on performance in the emergency room.

75.101 Emergency Room Drill Canvass 4 h.
Preparation with house officers and faculty, examining the extent of house staff preparedness under close supervision of the house officer and staff physicians responsible for the emergency service. Emphasis on recognition of the emergency situation, student participation under close supervision of house officer or staff physician.

75.103 Basic Therapy 4 h.
Matter becomes a matter of staff on ward and operating room care of patients appropriate to the condition and clinical problems, orientation to the hospital setting and the treatment of patients with acute illness. Prequisites: 75.1 and consent of instructor.

75.104 Pediatric Sages 4 h.
Designed for residents interested in pediatrics or surgery training clinical experience in the wards, operating room, and preparation for the medical and surgical conferences. Prequisites: 75.1 and consent of instructor.

75.105 Transplantation Surgery 4 h.
Emphasis on intensive experience on renal transplant plus exposure to coordinated efforts of other medical disciplines (e.g., internal medicine, urology) in daily rounds and conferences. Emphasis on research and clinical applications. Prequisites: 75.1 and consent of instructor.

75.107 Clinical Neurosurgery 4 h.
Advanced clinical training in neurosurgery disciplines emphasis on diagnosis of neurosurgical disorders and their treatment. Emphasis on clinical neurosurgery and neurosurgical-related conference. Prequisites: 75.1 and consent of instructor.

75.108 Research Surgery 4 h.
Student research paper and project report with member of surgical faculty and conference report at end of project. Prequisite: Department is on the basis of project. Prequisite: research of instructor.

75.110 Surgical Clinic 4 h.
Students may complete courses in their surgical, general surgery, or another surgical specialty. A total of 20 credit hours are required for the completion of the surgical portion of the program. Prequisites: 55.1 and consent of instructor.

75.125 Research in Cardiovascular Surgery 4 h.
Studies in cardiovascular surgery present an opportunity for students with research and complete an elective course in cardiovascular surgery. Prequisites: 55.1 and consent of instructor.

75.140 Extremity at the Vak So Dose Makers 4 h.
75.235 General Surgery: Iowa Methodist Medical Center 4 h.
75.415 General Surgery for Physicians Assistant Students 4 h.
55.500 Special Studies I Off Campus 4 h.
59.998 Special Studies II Off Campus 4 h.

Urology
Head: Michael D. Williams

In addition to the areas of urinary tract stone, urinary tract infections, diagnostic urology, and the results of urinary tract infection, urology also includes urological nephrology, urological oncology, urological endocrinology, and pediatric urology.

The Department of Urology in The University of Iowa College of Medicine offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care.

The Department of Urology, a part of the Department of Medicine, offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care.

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The Department of Urology offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care.
70:016 Urological Oncology

Internee clinical experience in diagnostic and management of all types of genitourinary malignancy. Participation in department's current urology protocol. Experience in consultation, management or treatment of urologic cancer or in prevention or collaboration on a prostate.

70:018 Male Endocrinology and Reproductive

Assessment and management of renal failure in male endocrinology, and male reproducibility. Participation in the development of the medical evaluation of androgen deficiency and consultation and management of clinical problems.

70:106 Clinical Gastroscopy in Urology,

Viceversa Administration Medical Center,

Dr. Hiltz

70:105 Urology Options for Physician

Aviation Studies

70:099 Special Studies on Campus

Individually arranged by student with the approval of the department.
College of Nursing

Dean: Geraldine Fison
Dean emerita: Myra Andercute
Assistant dean, undergraduate studies and community affairs: Deborah McCord
Assistant dean, clinical programs: Judy Mutha
Registrar: Gail Wissel
Director, New student orientation and Admission: Carol Fajardo
Undergraduate admissions counselor: Elizabeth Rysa
Professor of Nursing: Elizabeth Aylward, Pamela Beattie, Elizabeth Bevis, Geraldine Fison, Judy Martin, Rosemary McKinley, Tom Timpoli-Reilly, Barbara Thorne
Professor emeritus: Eva Erickson, Hope Solomon

Associate professors: Kathleen Bockstaff, Terri Eber, Martha Burt, M. Patricia Donovan, Joan Jard, Moira Frantz, Rita Frantz, Mildred Frei, Rose Marie Friedrich, Laura Hart, Leslie Maret, Elizabeth McCord, Joanne McKinley, Jacinta Powell, Jeanne Ross, Elizabeth Stemmen
Associate professors emeritus: Daisy Benso, Geraldine Ruster, Marylee Garden, Nanci Nolt, Myra Lyon, Anna E. Overstreet, Elva M. Heiseman

Assistant professors: Marjorie Boulter, Martine Brandt, Lynda Breslin, Carol Crowell, Donald Detwiler, Danita DeWitt, Mary DeWitt, Mary Jane Dreschel, Timothy Ercolino, Martha Francis, Nancy Frick, Kathleen Clark, Patricia Clinton, Mary Cotton, Janet Cruz, Kerri Colp, Dawn Delano, Linda Durance, Mary Ann Vroman

Assistant professors emeritus: Joelle Adams, Mary Rock, Paul Zenicka

Instructors and lecturers: Roque Alvaro, Lucinda Anderson, Mary Aplin, Loretta Alter, Barrie Arrick, Teresa Benchman, Teresa Pearse, Mary Ann Bennett, Timothy Birkett, Martha Carpenter, Nancy Chateau, Kathleen Clark, Patricia Clinton, Mary Cotton, Janet Cruz, Kerri Colp, Dawn Delano, Linda Durance, Mary Ann Vroman

Assistant professors emeritus: Joelle Adams, Mary Rock, Paul Zenicka

Nursing Building

Degrees offered: B.S.N., M.A.
The College of Nursing is an integral part of The University of Iowa Health Center, striving in and contributing to teaching, research, and patient-care resources that have earned international recognition. The University health center provides an extraordinary setting for nursing—preparation for nursing, because the educational and clinical resources that are needed to educate nurses are available on or near the campus. Faculty and students can participate fully in all University activities and to contribute their time, interest, and abilities to the many general and special activities of a major and modern university.

Both the baccalaureate and graduate programs of the college are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional accrediting agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Nursing, and graduates of the program qualify to take the baccalaureate examination required for practice as registered nurses.

Undergraduate Program

Men and women educated as professional nurses are in demand in a variety of jobs and settings, among them community health nursing services, doctors' offices, clinics, hospitals, public health agencies, the Peace Corps, the World Health Organization, the Red Cross, and hospital personnel. Men and women of all ages, youth, campus, and professional backgrounds may be engaged in clinical nursing, teaching, research, or private practice.

A bachelor's degree program such as that offered by The University of Iowa provides college education for careers in the hospital care of patients and in community agencies such as public health services, schools, and industries. In addition, it provides the necessary base for graduate study in nursing. In addition to the advantages of combining general education with specific career preparation, a college or university program offers the advantages—hardly less important—of full participation in the social, cultural, and recreational activities of a highly diverse campus community. In nursing no less than in other pursuits, a college or university background enables many young people not only to realize their highest career potential, but to achieve the greatest measure of self-fulfillment in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic 128-semester-hour program consists of 78 semester hours of liberal arts General Education Requirement courses and supportive prereading courses, and 50 semester hours of course work in nursing. Students complete the program in four or four and one-half academic years.

Course offerings are based on the concepts of health, deviations from health, and nursing intervention, and are presented in progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rendered outside hospitals and to persons other than the acutely ill.

Approaches to the College of Nursing

Students may complete their entire program at Iowa, enrolling the first year in the College of Liberal Arts, or they may transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.

Cooperating state institutions in the transfer plan include Iowa State University, the University of Northern Iowa, and Upper Iowa University; and St. Clair, Morningide, Loras, Luther, Clarke, Simpson, and Wartburg colleges.

Participating community colleges are located in Ottumwa, Mason City, Marshalltown, Muscatine, Clinton, Iowa Falls, Ankeny, Boone, and Fort Dodge.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfers are the same as for all other College of Nursing applicants. Prospective transfer students who want more information about this plan should contact the cooperating institution of their choice.

Cooperative Clinical Internship

Cooperative education clinical internships are available to qualified undergraduate students who have completed three semesters of clinical nursing courses and have maintained a nursing grade-point average of 3.0 or higher. Interested students should contact the College of Nursing coordinator, clinical nursing internship program, for specific information about participation.

Aging Studies

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students a multidisciplinary approach to gerontology. Students plan their course of study with their academic advisor in close cooperation with the aging studies program coordinator. For further information see "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

Honors Program

Students in the College of Nursing may be eligible for invitation to the College of Nursing Undergraduate Honors Program at the completion of the first clinical nursing course. A nursing course grade-point average of 3.5 or higher and a cumulative grade-point average of 3.25 or higher is required.

To continue in the honors program and to be eligible to graduate with honors in nursing, students must maintain a cumulative nursing grade-point average of 3.5 and must complete at least three honors courses in the nursing major. Further information and admission are available from the College of Nursing.

Registered Nurses

For registered nurses who wish to complete the BSN degree and who have completed all required prerequisite courses, challenge examinations, and admission to the College of Nursing, a one-year plan of study is available for required nursing courses.

Registered nurses planning to enter the baccalaureate program should obtain special information and advice from the College of Nursing.

Faculty Advisers

Advisers from the Undergraduate Academic Advising Center advise pre-nursing students. After admission to the College of Nursing, each student is assigned a nursing faculty adviser.

Student Organizations

College of Nursing students have their own Association of Nursing Students and are also eligible for membership in the state and national associations of nursing students.

Expenses

Students pay the general University fees throughout the program. They also must purchase uniforms, white shoes, a stethoscope, a watch with a full-strap second band, and supplies and materials for required nursing courses. Students arrange for their own health screening requirements and transportation once accepted into clinical nursing courses.

Financial Aid

In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For information about financial assistance, write to the University Office of Student Financial Aid.

Admission

High School Background

The college strongly recommends four years of English, two years of history, three years of mathematics, and one year each of biology, chemistry, and physics. For the most part, other college preparatory courses selected with the help of the high school counselor.
College Background
To apply for admission to the undergraduate program in nursing, each student must be admitted to The University of Iowa and present: 1) a minimum of 28 semester hours completed in an accredited college; 2) successful completion of seven of the fourteen prerequisites to the first clinical nursing course, including successful completion of three of the following science courses: inorganic chemistry, organic chemistry, animal biology, microbiology, human anatomy, human physiology; 3) a minimum grade-point average of 2.0 on a 4.0 scale.

Preclinical Background
Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work:
Biology—4 semester hours of general biology or one year of general chemistry, or the equivalent.
Chemistry—4 semester hours of general chemistry, or the equivalent.

Mathematics—one-half year of high school algebra or a more advanced course in mathematics. Students may be admitted with a grade of C or better in the following mathematics courses: College Algebra, Plane Trigonometry, Calculus, or equivalent.

Physics—one-half year of high school physics or the equivalent. If physics is not offered at the college level, the course may be included in the 32 semester hours required for admission.

Special Prerequisites
Although courses offered by the College of Nursing emphasize a holistic approach to patient care, students can concentrate on either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select courses in these areas.

Course Work
Courses in the Bachelor of Science in Nursing program are divided into five terms:

1. The freshman year
2. The sophomore year
3. The junior year
4. The senior year
5. The summer before senior year

Selection Factors
Admission to the College of Nursing is based on a combination of academic background, personal qualities, and other factors. Students must have completed all prerequisites to the first clinical nursing course, including successful completion of three of the following science courses: inorganic chemistry, organic chemistry, animal biology, microbiology, human anatomy, human physiology; and must have a minimum grade-point average of 2.0 on a 4.0 scale.

Applicants must meet the following requirements:
1. A minimum of 28 semester hours completed in an accredited college.
2. Successful completion of seven of the fourteen prerequisites to the first clinical nursing course, including successful completion of three of the following science courses: inorganic chemistry, organic chemistry, animal biology, microbiology, human anatomy, human physiology; and must have a minimum grade-point average of 2.0 on a 4.0 scale.
3. A minimum grade-point average of 2.0 on a 4.0 scale.

Application Deadlines
Applications must be received by May 1 for the fall semester, and December 1 for the spring semester.

Graduate Program
Master of Arts
The University of Iowa Master of Arts program in nursing is offered by the Department of Nursing. The curriculum is designed to build on general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from a baccalaureate degree program is one of the admission requirements.

The program prepares students for a career in a diverse array of nursing specialties and allows for the development of skills in a role area related to their career goals. The curriculum has a 17 semester hour core of advanced nursing courses that are designed to serve as the foundation for specialization and role preparation in specific areas. Students may select their area of specialization in one of the following specialties: adult-gerontology nursing, child health nursing, family health nursing, and community/public health nursing.

In addition to the required courses, students may select electives in the areas of specialization to meet their individual needs and career goals. Students may choose to pursue a specialization in the area of their choice, and these electives may include courses in areas such as adult-gerontology nursing, child health nursing, family health nursing, and community/public health nursing.

American College Tests
All applicants for admission to The University of Iowa must complete the American College Testing Program, except those tested in the American College Testing Program, Box 451, Iowa City, Iowa 52240.
specialization component. Students may select particular settings and/or preceptors compatible with their own career goals in fulfilling the practice requirements of these courses.

Supporting courses (9 semester hours): Students may choose their supporting course work in areas related to their nursing specialization or role preparation interests; one supporting science course related to the nursing specialization area is required.

Thesis (3 semester hours): Every student is expected to write and successfully defend a thesis; this involves a systematic inquiry into a nursing problem including such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies that meet the requirements of the Graduate College.

Plan of Study

The plan of study described below is designed for the full-time student. Students who wish to study on a part-time basis progress through courses in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, extends the time of study to three to five years. Any course work taken ten years or more prior to the final examination must be updated, according to University policy.

First Year

Fall Semester
96.200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
96.204 Leadership in Nursing 4 s.h.
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester
96.201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
96.222 Child Health Nursing I 4 s.h.
96.226 Adult Health Nursing I 4 s.h.
96.234 Community/Family Health Nursing 4 s.h.
9.210 Methods of Research in Nursing 3 s.h.
Supporting course 3 s.h.
Total 12 s.h.

Second Year

Fall Semester
96.211 Methods of Research in Nursing II 3 s.h.
96.223 Child Health Nursing II 4 s.h.
96.227 Adult Health Nursing II 4 s.h.
96.235 Community/Family Health Nursing II 4 s.h.

96.240 Curriculum Development in Nursing Education 3 s.h.
96.260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
or
96.266 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
96.270 Thesis Total 12 s.h.

Spring Semester
96.266 Professional Seminar: Issues in Nursing 2 s.h.
96.247 Nursing Education: Process, Roles, and Strategies I 3 s.h.
or
96.261 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
96.260 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
Supporting Course 3 s.h.
96.293 Thesis Total 11 s.h.

Admission

Students should seek admission to the graduate program in nursing through direct application to the Graduate College of the University.

Minimum requirements for admission to the Graduate College are a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) Aptitude Test scores; scores from the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.5 minimum grade-point average for regular admission, or a 3.0 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

- Possess a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing;
- Fulfill the legal requirements for the practice of nursing in Iowa;
- Have an undergraduate grade-point average of at least 3.7 or a demonstrated ability to do graduate work for regular admission, and at least a 2.5 undergraduate grade-point average for conditional admission;
- Have recommendations from three persons familiar with the applicant's competence in the practice of nursing and potential for leadership and scholarship; and
- Have successfully completed x graduate level (or equivalent) statistics course within three years prior to enrollment in the first research course, 96.210.

Applications for admission to the master's degree program are reviewed on a continuing basis. For review, the applicant's file must be complete, with all relevant materials submitted. Deadline for summer and fall admission is May 1. The spring semester admission deadline is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master's degree program are limited and must be approved by the student's advisor.

Professional Improvement

Some nurses may wish to take coursework at the University to fulfill the objective of professional or personal improvement only. Such individuals may request admission in the professional improvement category. This admission status will allow the student to take some graduate courses in the University without commitment to a degree objective.

Admission as a professional improvement student requires a formal application, including submission of three recommendations and all academic transcripts. GRE Aptitude Test scores must be submitted to fulfill the University requirement before the end of the first semester registration. Deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester, and May 1 for admission in the summer session.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master's candidate, professional improvement students are required to follow the application procedure described in the preceding section. Students admitted as professional improvement students must be taken under professional improvement status may be used to fulfill the M.A. requirements.

Continuing Education

Through the Department of Continuing Nursing Education, the college offers nonacademic, short-term programs for registered nurses. Programs are scheduled on campuses and at community sites throughout Iowa. Continuing education units (CEUs) are awarded for each program on the basis of one unit per 10 clock hours of instruction. Continuing Nursing Education is an Iowa Board of Nursing approved provider of continuing education, and is accredited by the National Accreditation Board of the American Nurses Association.
Electives

The current Schedule of Course lists nursing electives being offered. Courses vary from semester to semester.

96.640 Introduction to Gay Studies 3.0
96.641 Nursing Research and Practice 3.0
96.642 Introduction to U.S. History 3.0
96.643 Social Work Policy and Practice 3.0
96.644 Criminal Justice 3.0
96.645 Introduction to Psychology 3.0
96.646 Introduction to Sociology 3.0
96.647 Introduction to Women's Studies 3.0
96.648 Introduction to Comparative Literature 3.0
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College of Pharmacy

Dean: Robert A. Wiley
Dean emeritus: Dale E. Wurster
Associate dean, director of pharmaceutical services: John L. Lach
Assistant deans for undergraduate affairs:
David F. Conley
Head, Division of Medicinal Chemistry-Natural Products: Joseph G. Crumley
Head, Division of Pharmaceutical Sciences: Douglas R. Roberts
Head, Pharmacology: Joseph F. Crumley
Head, Pharmaceutical Economics and Outpatient Care Education: Capt. X. Renkova
Coordinator, Pharmacy Continuing Education: Wensel L. Kerr
Head, Division of Clinical Hospital Pharmacy: Dennis K. Hetting
Coordinator, Undergraduate Clinical Pharmacy Education: Paul J. Perry
Coordinator, Graduate Clinical Pharmacy Education: Richard D. Leff
Professor emeritus: Dale E. Wurster
Adjunct professor: Lester Chabat
Adjunct assistant professor: N. E. Jones
Assistant in pharmacy: Richard Kleinman
Adjunct assistant professors: Dorothy M. Miller, Gary Smith
Clinical associate professors: Bruce Alexander, James A. Peacock
Clinical assistant professors: Ruth Ann Cahn,
Calloway, Edward D. Carter, Gay B. Carter, Paula Hartman, Gary Martin, Betty M. Rowland, Richard V. Thowald, Joe C. Wray
Clinical instructors: David H. Bernhardt, Bernard J. Cimino, Dennis A. Elbert, W. Mike Smith, Alan L. Mathewson

Degrees offered: B.S. Pharm., M.S., Ph.D.
The pharmacological sciences are concerned with preparing and dispensing medicinal products and monitoring their activity. The pharmacist, through education and training, can identify, analyze, select, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics.

The pharmacist is basically a specialist in the science of drugs. He or she must understand drug composition, chemical and physical properties, manufacture and uses, and activity in the normal individual as well as in the ill patient, and must be familiar with tests for strength, purity, and efficacy of drug products. The pharmacist compiles and dispenses prescriptions written by health practitioners—who rely on the pharmacist for information about the availability, activity, toxicity, and contraindications of various drugs. The pharmacist also communicates knowledge of drugs to the patient and to other health professionals.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which she or he practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. More than 100,000 men and women practice in community pharmacies.

Some pharmacists are employed in hospital pharmacy practice. Others work in government service through the Food and Drug Administration, the Illuminating Company, or the Public Health Service, Veterans Administration, Food and Drug Administration, and the armed forces.

Many pharmacists assume administrative positions in industry, including marketing, research and development, promotion, advertising, and training. Many are employed in pharmaceutical sales as medical service representatives. Pharmacy training is specially valuable to these men and women, who are responsible for acquitted and public health veterinarians, and other pharmacists with diverse responsibilities.

In the United States more people receive total health care than ever before. This expansion of health care will continue. Young pharmacists will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities.

Undergraduate Program
Students in the College of Pharmacy are in a Bachelor of Science program. They receive an international training and education in a number of areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical economics, and clinical and hospital pharmacy.

The colleges of Liberal Arts, Business Administration, Dentistry, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, humanities, and social sciences.

The Bachelor of Science program in pharmacy consists of one year of prepharmacy study, two years in the College of Liberal Arts at the University of Iowa and at four years of pharmacy studies. It is possible to transfer into the College of Pharmacy after two years of college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes.

In addition to the basic preprofessional requirements, at least 9 semester hours of organic chemistry, 5-8 semester hours of biology or zoology, 3-4 semester hours of quantitative analysis, and at least 15 semester hours of general education electives.

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the licensure examination given by the Iowa Board of Pharmacy Examiners.

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 24 semester hours of electives, and to achieve a pharmacy grade-point average and a cumulative grade-point average of at least 2.0.

For rules and regulations concerning academic probation, pass/fail, credit by examination, maximum schedule, second-grade only option, waiver or substitution of courses, cancellation of registration, drop date, and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

Admission Requirements
Recent changes in the admission requirements and in the curriculum of the baccalaureate-degree program affect students admitted to the college in the fall of 1985 and after. Students admitted prior to the fall 1985 session must satisfy requirements that are different from the following. Questions concerning satisfaction of degree requirements should be directed to the chair of the undergraduate study and curriculum committee.

Preprofessional Course Work

Rhetoric: 8 semester hours, or 5 semester hours of transfer credit in English composition and rhetoric, and 2 semester hours in speech.

General chemistry: 8 semester hours.

Mathematics: 3 or 4 semester hours of a satisfactory differential and integral calculus course.

Physics: may be satisfied with one year of high school physics; students are encouraged to complete 208 Basic Physics.

General education electives: 6 semester hours.

In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elective courses should be in the behavioral, social, and humanistic areas of knowledge.

Transfer Students
Students who transfer into the college after two years in a community or liberal arts college, and who were admitted for Fall 1985 and thereafter, can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, quantitative analysis, and have satisfied general education requirements. Students who plan to remain in a community college for two years before transferring to The University of Iowa should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum
First Year
First Semester
46.13 Pharmacy Math 3 s.h.
4:140 Organic Chemistry I 4 s.h.
373 Principles of Animal Biology 5 s.h.
4:181 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46.14 Pharmacy Orientation 2 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Lab 4 s.h.
*40:112 Principles of Human Anatomy 3 s.h.
**General Education Electives 4-6 s.h.
Total 15-17 s.h.

* Also offered first semester for students on a 2.3 program only.
**In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elective courses should be in the behavioral, social, and humanistic areas of knowledge.

Second Year
First Semester
46.23 Pharmacology I 4 s.h.
59:148 Biochemistry for Pharmacy Students 4 s.h.
61:112 Health Sciences Microbiology 4 s.h.
*40:102 Principles of Human Anatomy 3 s.h.
**General Education Electives 0-3 s.h.
Graduate Programs
The college has graduate programs in each of its four academic divisions. Masters in Science and Doctor of Philosophy programs are available in pharmacology, medicinal chemistry, biochemistry, and pharmaceutical economics. A Master of Science degree is available in clinical hospital pharmacy.

Advanced study in the pharmaceutical sciences prepares the student for research, teaching, and administrative positions in the pharmaceutical, chemical, and agricultural chemical industries, in colleges and universities, in government agencies, and in a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, Graduate Record Examination (GRE) Aptitude Test scores, and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are determined by individual divisions of the College of Pharmacy.

Doctor of Pharmacy
The Doctor of Pharmacy (Pharm.D.) program is a three-year, post-baccalaureate professional degree program that combines didactic course work and clinical clerkships. The program is accredited by the American Council on Pharmaceutical Education. The major goal of the program is to provide the healthcare system with pharmacists who are specifically prepared to undertake an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available on a limited number of sites and requires students to specifically prepare to undertake an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available on a limited number of sites and requires students to specifically prepare to undertake an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients.

Facilities
The College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library, the College of Pharmacy is located in the health center complex on the University's main campus. Close proximity to the colleges of Medicine, Nursing, and Dentistry, the University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library.
students and provides on-line computer search for pharmacy students and faculty.

The Pharmaceutical Services Division of the college serves as a teaching and as well as a service division. Here undergraduate and graduate students learn about large scale pharmaceutical product development and production. The division is of the central pharmacy, and its licensorship by the U.S. Food and Drug Administration makes it an important facility.

The Iowa Drug Information Service (IDS) also serves as a service division of the college. IDS serves as a central repository and distribution center of specialized information related to drugs and drug therapy. IDS not only reaches subscribers throughout the world, but plays an important educational role for undergraduate and graduate pharmacy students as well.

In the clinical pharmacy program, students work with other health professionals and have the opportunity to monitor drug therapy in hospitalized and non-hospitalized patients, under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The various clinical facilities in which students are involved include many areas of The University of Iowa Hospitals and Clinics and Veterans Administration Medical Center, the family practice centers at Iowa City, Cedar Rapids, and Davenport; Iowa City Mercy Hospital; Mercy and St. Luke’s Hospitals in Cedar Rapids; Schiefe Hospital in Waterloo; the Burlington Medical Center in Burlington, St. Joseph’s Mercy Hospital in Mason City; Fort Dodge Hospital in Fort Dodge; the Community Health Center of Iowa, Inc. in Des Moines; the Marion Health Care Center in Marion; the State Mental Hospital, Institute, St. Elizabeth’s Hospital, Mary Greeley Hospital in Ames; St. Luke’s Hospital in Davenport; Mercy Health Center in Des Moines; Methodist Hospital in Omaha, the Indiana University Hospital in Zuni, New Mexico; and numerous selected community pharmacies.

Courses

Undergraduate Pharmaceutics

4613 Pharmacology I 3.0h
Application of principles of drug action and methods for evaluation and interpretation of drug responses. Includes techniques in statistics and applied to pharmacological problems.

4614 Pharmacology II 3.0h
Lectures and discussion on applications of pharmacology, pharmacokinetics and pharmacodynamics, test-tube and animal models, practical aspects, and pharmacological considerations of safety and toxicity. Prerequisites: 4612 and 4613.

4633 Pharmacology III 3.0h
Principles of drug design, distribution, metabolism, and interactions. The relationship of these processes to drug structure, analysis, and therapy. Prerequisites: 4614 and 4715.

4643 Pharmacometrics 4.0h
Lectures on epidemiology and statistical aspects of drug use, efficacy, and safety of new drug evaluation. Selected topics in the design and analysis of clinical drug trials. Prerequisites: 4614 and 4715.

4658 Pharmaceutics 3.0h
Principles of drug design, distribution, metabolism, and interactions. The relationship of these processes. Prerequisites: 4614 and 7716.

4663 Physical Pharmacy 4.0h
Lectures on physical pharmacy, including design and evaluation of dosage forms, the relationship of physical properties of dosage forms to the efficacy of the product. Prerequisites: 4614.

4681 Human Seminar 1.0h
Weekly discussion of scientific, philosophical, economic, and ethical issues of importance to the practice of pharmacy.

Graduate Pharmaceutics

4681 Pharmacy Projects 1.0-3.0h
Open to graduate students. Prerequisites: 4614 or 4633.

4691 Physical Pharmacy 3.0h
Lectures on physical pharmacy, including design and evaluation of dosage forms, the relationship of physical properties of dosage forms to the efficacy of the product. Prerequisites: 4614.

4692 Biopharmaceutics 3.0h
Introduction to the relationship of physical properties in the design and evaluation of dosage forms. Prerequisites: 4614.

4694 Special Topics 2.0-3.0h
Topics in the design and evaluation of dosage forms, the relationship of physical properties of dosage forms to the efficacy of the product. Prerequisites: 4614.

4691 Industrial Pharmacy 3.0h
Organization and work operations of production of pharmaceuticals. Prerequisites: 4694.

4696 Seminar 3.0h
Practical and theoretical aspects of the design, manufacture, and quality assurance of pharmaceutical products. Prerequisites: 4694.

4697 Pharmacy 4.0h
Practical and theoretical aspects of the design, manufacture, and quality assurance of pharmaceutical products. Prerequisites: 4694.

4691 Seminar in Pharmacy 2.0-3.0h
Practical and theoretical aspects of the design, manufacture, and quality assurance of pharmaceutical products. Prerequisites: 4694.

4691 Seminar in Pharmacy 2.0-3.0h
Practical and theoretical aspects of the design, manufacture, and quality assurance of pharmaceutical products. Prerequisites: 4694.

4691 Seminar in Pharmacy 2.0-3.0h
Practical and theoretical aspects of the design, manufacture, and quality assurance of pharmaceutical products. Prerequisites: 4694.

Graduate Medicinal Chemistry: Natural Products

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4614 and 4694.

4692 Medicinal Chemistry: Natural Products II 4.0h
Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4692 Medicinal Chemistry: Natural Products II 4.0h
Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4692 Medicinal Chemistry: Natural Products II 4.0h
Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4692 Medicinal Chemistry: Natural Products II 4.0h
Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

Graduate Medicinal Chemistry: Natural Products

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4692 Medicinal Chemistry: Natural Products II 4.0h
Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

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Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4691 Medicinal Chemistry: Natural Products I 4.0h
First semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.

4692 Medicinal Chemistry: Natural Products II 4.0h
Second semester of a two-semester sequence. Lectures and laboratories on organic medicinal chemistry and therapeutic agents of plant origin. Prerequisites: 4694.
48.110 Pediatrics Clerkship
Advanced applications of clinical pharmacology/therapeutics principles to optimize therapy management in the infant and adolescent pediatric population. Prerequisites: Pharmacy D standing and consent of instructor.

48.112 Pharmacist's Clerkship
Instruction and prerequisite experience in clinical pharmacy. Prerequisites: Pharmacy D standing and consent of instructor.

48.114 Pharmacy Clerkship
Advanced applications of clinical pharmacokinetics and pharmacodynamics in the care of patient and support of pharmacists in the use of computerized pharmacy systems. Prerequisites: Pharmacy D standing and consent of instructor.

48.115 Pharmacy Clerkship
Introduction to applications of computerized systems in pharmacy practice related to pharmaceutical science. Prerequisites: Pharmacy D standing and consent of instructor.

48.116 Surgery Clerkship
Advanced applications of therapeutic skills in the care of surgical patients. Prerequisites: Pharmacy D standing and consent of instructor.

48.117 Clinical Oncology Pharmacy Clerkship
Advanced clinical instruction in the care of radiotherapeutically irradiated patients. Prerequisites: Pharmacy D standing and consent of instructor.

48.120 Hospital Pharmacy Practice Survey
2 a.h.

Graduate Clinical-Hospital Pharmacy

48.120 Hospital Pharmacy Practice Survey
2 a.h.

Advanced applications of principles of pharmacokinetics and pharmacodynamics in patient care. Prerequisites: Pharmacy D standing and consent of instructor.

48.125 Clinical Pharmacy: Drug Literature Review and Synthesis
2 a.h.

Pharmacy Building
Continuing Education

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to render "ladder service" to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals, and the aims of several departments and colleges of the University and by bringing the University generally into direct contact with the citizens. "The division's organization and services include the following:

Center for Credit Programs

The Center for Credit Programs is responsible for the delivery of University of Iowa credit courses to adults and other part-time students, both in Iowa City and throughout the state. In cooperation with the University's various colleges and academic departments, the Center for Credit Programs arranges course delivery to graduate and undergraduate students by making use of the various formats and delivery systems listed below.

Correspondence Courses

Over 100 Guided Correspondence Study courses are available from the colleges of Liberal Arts, Business Administration, Education, Engineering, Medicine, and Nursing. These courses represent a total of 41 departments within the University. Students may enroll at any time and have nine months in which to complete work. A catalog including course listings, program descriptions, and registration forms may be obtained from Guided Correspondence Study, WH 400 Seashore Hall.

Off-Campus Classes

The Center for Credit Programs offers off-campus classes from the colleges of Liberal Arts, Business Administration, Education, Nursing, and Engineering. Classes are scheduled where they may best serve the off-campus students, and at the request of private school officials, or where professional, industrial, or other qualified groups indicate a specific need for instruction. The Center also offers a variety of telecourses in cooperation with Iowa Public Television. Courses generally require a sufficient number of enrollees to meet course expenses. For information, write to Center for Credit Programs, WH 400 Seashore Hall.

Saturday and Evening Classes

The Center for Credit Programs offers credit courses for part-time undergraduate, graduate, or nonclassified students in the Iowa City area. All courses are offered from schools and departments of the University. For a Saturday and Evening Classes catalog, write to The Center for Credit Program, WH 400 Seashore Hall.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies (B.L.S.) degree is designed to serve adults who cannot attend full-time, on-campus students. The program has no residency requirement. Credit toward the degree may be earned through correspondence study, Saturday and evening classes, off-campus courses, and television and Multimedia courses. Course work from community and private colleges may be applied toward the degree, as may work done at any of the Iowa Regents universities. The Bachelor of Liberal Studies is awarded by the College of Liberal Arts. For more information contact the Center for Credit Programs, WH 400 Seashore Hall.

Center for Conferences and Institutes

The conference center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for nonresident adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are not going to study full-time students who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 10,000 adults receive training in the center's meet programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The enrollment of appropriate resources, coupled with the professional planning and execution of conferences and other short-term training programs, helps to ensure the achievement of the educational objectives specified for each program.

The director of conferences is responsible for appraising and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings held in the Iowa Memorial Union for groups other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions to be held on campus or in the Iowa City-Coralville area are expected to schedule these activities through the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union, to the extent that they are available and appropriate.

Adult Education Noncredit Program

This open enrollment program provides a wide variety of noncredit short course offerings of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units may be awarded for course completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

WURI and KXII-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcasting that emphasizes the University's activities and the University's mission and are not primarily commercial in nature. The station's programming consists of educational, cultural, and informational programming. WURI has access to about 225 non-commercial radio stations.

The main studios and offices are located in 3300 Engineering Building, and a list of the station's Program Guide may be obtained by writing to the address:

Institute of Public Affairs

The mission of the institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the institute are available to state and local government agencies and to citizens groups interested in government affairs.

The institute has a full-time research and training staff. Through the institute, other resources of the University are applied to problems faced by Iowa public officials. The institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.
The institute provides in-service training and continuing education services to public personnel, primarily managers and supervisors, offering a wide variety of courses and programs aimed at meeting individual and organization needs as well as professional goals.

Research services, informational resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa governments; and

Organizational assistance ranging from advising on city council goal setting, management systems, and quality circles to serving on state-wide government committees dealing with major concerns of state and local governments.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences on Lake Okoboji, Iowa, where a cooperative program in teaching and research is carried on under the auspices of Iowa State University, University of Northern Iowa, and The University of Iowa. Two terms of five weeks each are held during June, July, and August. Facilities for year-round research are available. For information, write to the Division of Continuing Education. (See listing for "Iowa Lakeside Laboratory"

under the "College of Liberal Arts" section of the Catalog.)

Audiovisual Center

The mission of the Audiovisual Center is to assist University faculty and students in the improvement of the teaching-learning process through the effective use of audiovisual media. To accomplish this objective, the Audiovisual Center provides a full range of services, as follows.

Media Services

The Audiovisual Center Media Library provides a major collection of 16mm instructional films and videotapes, available on campus without charge for instruction and curriculum-related activities, and for rental off campus. Smaller collections of audio tapes, filmstrips, and slides, plus facilities for student or faculty utilization, also are available. Catalogs of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use film, slide, filmstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders; record players; portable public-address systems; and display devices (chalkboards, easels, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and/or off-campus use. Repair service is available at a nominal charge for all audiovisual equipment.

Media Production

Professional services, facilities, and equipment are available to produce original software in all media:

Graphics—design, layout, paste-up, illustrations, charts, graphs, lettering, etc.;

Audio—recording, editing, duplication, transcription services;

Motion picture—scripts, cinematography, and editing;

Photography—portraits, passports, slide shows, filmstrips, 35mm slide duplication, printing and processing services;

Television—video production, color and black-and-white (1-inch, 2-inch, and cassette); systems design; equipment maintenance; portage rental;

Fabrication—design and construction of displays, specialized audiovisual equipment and furniture;

Marketing—sales, distribution, and marketing of University-originated products and services.

Satellite Centers

Satellite centers are established, as needed, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies. Satellite centers currently include the Medieval Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.
Administrative Officers

State Board of Regents
The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa State University of the Black Hawk County, the Iowa State University of the Hardin County, and the Iowa State University of the Nebraska County. The board membership is as follows:

President: John McDonald, Dallas Center
Vice-President: Robert J. Herring
Director of Operations: John F. Kennedy
Graduate College: Dean: Duane C. Sprinzelsbach
Dean of Advanced Studies: Ralph W. Schulz
College of Law: Dean: N. William Hines
College of Liberal Arts: Dean: Gerhard Loewenberg
School of Art and Art History Director: Wallace J. Tomanini
School of Journalism and Mass Communication Acting Director: John E. Erickson
School of Library and Information Science Director: Carl P. Oegen
School of Music Director: Marilyn F. Sears
School of Religion Director: John P. Beck
School of Social Work Director: Janice Wood Wooten
College of Medicine: Dean: John W. Eckstein
College of Nursing: Dean: Gerdinette Feltos
College of Pharmacy: Dean: Robert A. Weyg
Division of Continuing Education: Dean: Emmert L. Vaughan
Audiovisual Center Director: William G. Whitten
Creative Arts Director: John J. Leuten
Center for Credit Programs Director: John E. Kennedy
Community College Affairs Director: Duane C. Anderson
Institute of Public Affairs Director: Clayton Kingsberg
Iowa Agricultural Laboratory Director: Richard V. Bouwman
Radio Station WSSU-88K Director: George S. Klingler
Iowa Center for the Arts
Chair: Philip G. Hubbard
Libraries
University Librarian: Dale M. Bentsen
Museum of Art: Robert C. Hobbs
Old Capitol
Director: Margaret N. Kayes
Summer Session
Director: Nancy V. Bostrom
Affirmative Action Affairs
Director: June D. Cargile

Educational Development and Research
Vice President: Duane C. Sprinzelsbach
Division of Sponsored Programs: Margery E. Hopkins
Office of Project Development: Jay Sennel
Institute for Child Behavior and Development: Alfred Healy
Health Services Research Center: Samuel Leary
Office of International Education and Services: Stephen M. Arna
Office of Information Technology: Waeg Computing Center
Director: W. Lee Shope
Public Information and University Relations
Acting Director: Thomas K. Bauer
Occupational Health Services
Director: Paul R. Fanton, Jr.
Health Protection
Director: William E. Tucker
State Archaeologist: Duane C. Anderson
University House
Acting Director: Jay Sennel
University of Iowa Press
Director: Paul Zimmer

Student Services
Vice President: Philip G. Hubbard
Dean of Student Services: Phillip J. Jones
Admissions Director:
Registrar
Registrar: Gerald W. Dillam

Residence Services
Director: George L. Devol

Hamers Hall
Director: Wallace A. Chappell

Hawkeye Memorial Union
Director: Jean Kendall

Business and Liberal Arts Placement
Director: Nancy C. North

University Counseling Service
Director: Gerald L. Stone

Special Student Services
Director: Paul Shaag

Student Financial Aid
Director: John E. Moore

University Evaluation and Examination Service
Director: T. Anne Cleary

Orientation Services
Director: Emil Kindseppen

Campus Programs and Student Activities
Coordinator: Kevin Taylor

Office of Services for the Handicapped
Coordinator: Donna Chandler

Women’s Resource and Action Center
Coordinator: Susan Buckley

Finance and University Services
Vice-President: Dorsey D. Ellis, Jr.

Business Office
Business Manager: Michael J. Finnegan
Acting Treasurer: Richard A. Stephenson
Controller and Secretary: Douglas N. Young

University Personnel Services
Acting Director: George A. Schulte
Planning and Administrative Services
Director: Richard E. Glisson

Intercollegiate Athletics for Men
Director: Chalmer W. Elliott

Intercollegiate Athletics for Women
Director: Christine Grant

Recreational Services
Director: Harry R. Ostrander

University Health Services
Assistant to the President for Statewide Health Services: John W. Coliton

University Hospitals and Clinics
Director: John W. Coliton

Psychiatric Hospital
Director: George Winkler

State Hygienic Laboratory
Director: William J. Hauser

University Hospital School
Director: Alfred Healy

Student Health Services
Acting Director: Mary L. Kewarsik

Regional Child Health Specialty Clinics
Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas L. Brown

University of Iowa Foundation
President: Daniel D. Wyckoff
Zimmerman-Holzge Birge, E. Ulrich Ludwig- Max (Germany) 1956, Dr. Phil. 1974, associate professor of German. 1982.
Admission Rules Common to the Three State Universities

720—1.2(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice. Applicants must submit a formal application for admission, together with a $10.00 application fee, and have their secondary school provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:

a. Be admitted unconditionally,
b. Be admitted conditionally,
c. Be required to enroll for a trial period during a preceding summer session, or
d. Be denied admission.

1.1(2) Graduates of accredited high schools in other states may be held to higher academic standards, but must meet at least the same requirements as graduates of Iowa high school. The options for conditional admission or summer trial enrollment may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of correspondence high schools will be considered for admission in a manner similar to graduates of approved Iowa high schools, but additional emphasis will be given to courses taken on standardized examinations.

1.1(4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. They will be required to submit all academic data to the extent that it exists and achieve scores on standardized examinations which will demonstrate that they are adequately prepared for academic study.

Students with superior academic records may be admitted on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation.

In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

720—1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice. Applicants must submit a formal application for admission, together with a $10.00 application fee, and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2(1) Transfer applicants with a minimum of twelve semester hours of graded credit from regionally accredited colleges or universities, who have maintained a "C" average (2.00 based on an "A" grade being 4 points) for all college work previously attempted, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who have not maintained a "C" average or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:

a. Be admitted unconditionally,
b. Be admitted conditionally,
c. Be required to enroll for a trial period during a preceding summer session, or
d. Be denied admission.

1.2(2) Admission of students with fewer than twelve semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under the early admission will not be considered for admission until information concerning the reason for the suspension has been received from the college. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges or universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

720—1.3(262) Transfer credit practices

The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (COPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit is awarded determined by the receiving university to be a of remedial, vocational, or technical nature, or credit in courses or programs in which the student appears to be grades of credit on other the is not directly involved, may not be accepted, or may be accepted to a limited extent. Transfer credit from a two-year college will not reduce the minimum number of credit hours required for a baccalaureate degree if that credit is earned after the total number of credit hours accumulated by the student at all institutions attended exceeds once the number of credit hours required for that degree.
1.4(1) general a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, fee and tuition purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information. The registrar, or designated person, is authorized to require such written documents, affidavits, verifications, or other evidence deemed necessary to determine the domicile of a student. The burden of establishing that a student is domiciled in Iowa is upon the student.

b. In determining resident or nonresident classification, the issue is essentially one of domicile. In general, the domicile of a person is that person's true, fixed, permanent home and place of habitation. It is the place to which, whenever the person is absent, the person has the intention of returning.

c. Under these regulations, a resident student is defined as one who is domiciled in the state of Iowa. A nonresident student is defined as one whose domicile is elsewhere. A student shall not be considered domiciled in Iowa unless the student is in continuous physical residence in this state and intends to make a permanent home in Iowa.

d. A person who comes to Iowa from another state and enrolls in any institution of postsecondary education for a full program or substantially a full program shall be presumed to have come to Iowa primarily for educational reasons rather than to establish domicile in Iowa. Such a person shall be classified nonresident unless and until such person can demonstrate that the previous domicile has been abandoned and an Iowa domicile established.

e. The following facts and circumstances, although not necessary, may be support for claiming domicile in Iowa.

f. Other factors indicating intent to make Iowa the student's domicile will be considered by the universities in classifying the student.

1.4(2) Facts a. A person who is moved into the state as the result of military or civil orders from the government for other than educational purposes, or the dependent of such a person, is entitled to resident status. However, if the arrival of the person under orders is subsequent to the beginning of the term to which the student is first enrolled nonresident tuition will be charged in all cases until the beginning of the next term in which the student is enrolled.

b. A person or the dependent of a person whose legal domicile is permanently established in Iowa who has been classified as a resident for tuition purposes, may continue to be classified as a resident so long as such domicile is maintained, even though circumstances may require extended absence of said person from the state. It is required that persons who claim as Iowa domiciles while living in another state or country will provide proof of the continued Iowa domicile such as (1) evidence that they have not acquired a domicile in another state, (2) they have maintained a continuous voting record in Iowa, and (3) they have filed regular Iowa resident income tax returns during absence from the state.

c. Domicile of property in Iowa, or the payment of Iowa taxes, does not in itself establish domicile.

d. A student who willfully gives incorrect or misleading information to evade payment of resident tuition and fees shall be subject to serious disciplinary action and must also pay the nonresident fee for each term attended.

e. An alien who has an immigration visa may not establish domicile in Iowa in the same manner as a United States citizen.

f. A person who has been certified as a refugee by the appropriate agency of the United States who enrolls as a student at a university governed by the Iowa state board of regents may be accorded immediate resident status for tuition purposes where the person: (1) Comes directly to Iowa from a refugee facility or any other port of debarkation; or (2) has resided in another state for 180 days or less; and if (3) provides satisfactory documentation that the person has an Iowa sponsor.

Any refugee not meeting these standards will be presumed to be a nonresident for tuition purposes and thus not entitled to a student's use of the facilities of an Iowa domicile.

1.4(3) Effective July 1, 1977, requires that military personnel who claim residency in Iowa (home of record) will be required to live Iowa resident income tax
returns. Military personnel will be expected to have filed their tax return; income tax returns regularly if resident status is to be maintained.

b. Change of classification from nonresident to resident will not be made retroactive beyond the term to which application for resident classification is made.

1.4(2) Guidelines

The following guidelines are used in determining the resident classification of a student for tuition purposes.

a. A student may be required to file any or all of the following: (1) A statement from the student describing employment and expected sources of support as a student; (2) a statement from the student’s employer; (3) a statement from the student’s parents verifying nonsupport and the fact that the student was not listed as a dependent on tax returns for the past year and will not be so listed in future years; (4) Supporting statements from persons who might be familiar with the family situation.

b. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident provided the student maintains continuous enrollment. A financially dependent student whose parents move from Iowa during the senior year of high school will be considered a resident provided the student has not established domicile in another state.

c. A student who was a former resident of Iowa may continue to be considered a resident if a residence-abiding student from the state was for a period of less than twelve months and provided domicile is re-established. If the absence from the state is for a period exceeding twelve months, resident status would be re-established. If the student has been enrolled in an institution for which no evidence of residence has been maintained, the student will be excluded from the establishment criteria. However, a long-term former resident who returns after an absence of more than one year but less than two years is allowed to regain residency after one year even through a full-time military service.

d. A student who has been a continuing student at the University of Iowa and who is a current student at the University of Iowa and who is a current student at the University of Iowa and who is a current student at the University of Iowa and who is a current student at the University of Iowa and who is a current student at the University of Iowa and who is a current student at the University of Iowa.

e. A student who enters the University of Iowa at the beginning of the fall term is a resident. If the student is a non-resident, the student will be excluded from the establishment criteria. If the student is a resident, the student is not enrolled for more than eight credits (four credits during the summer session) in any academic year and provides sufficient evidence of establishment of domicile in Iowa or

f. If a person is engaged in a religious vocation, Peace Corps, Vista or other forms of full-time military service as a non-resident, resident classification is maintained if the person immediately returns to the state following the assignment. A person who enters such service from the state and who is on furlough may be considered a resident if the person is returning to the field. If service has been terminated prior to returning to Iowa, the person would be presumed to be a nonresident if the return to the state was more than twelve months from the termination of the service.

1.4(4) Review committee

These regulations shall be administered by the registrar or a person designated by the registrar. The decision of the registrar or person designated may be appealed to a university review committee. The finding of the university review committee may be appealed to the Iowa state board of regents.

720—1.5(262) Registration and transcript—general

A person may be required to register for a course or courses at a state board of regents institution until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent has been paid.

A state board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent has been paid.

Supplemental Specific Rules for The University of Iowa

720—2.1(262) Formal application for admission

All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been issued an admission statement by the director of admissions.

720—2.3(262) College of business administration

2.3(1) Applicants for admission for the College of business administration should be submitted to the director of admissions.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

720—2.4(262) College of dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete the baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry.

Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Completion of the specific requirements for admission to dentistry is needed for admission to the College of Dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study of dentistry. Each applicant must place in the office of the director of admissions the completed application form and an official transcript from each college attended. The college work outlined below will suffice to meet the academic requirements for admission to the college of dentistry.
The college curriculum must include at least three academic years of accredited work comprising not less than thirty-six semester hours and including specific required science courses as prescribed by the faculty of the college. Credit hours should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements the applicant should attain a cumulative grade-point average of 2.5. Since the quality of course work is predental science is basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the Committee on admissions of the college of dentistry. Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental recruitment of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the aptitude test no later than October 1 to permit the admissions committee to begin its selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of acceptance in order to reserve their applications. This deposit is not refundable but is credited toward the first term's tuition and fees. The applicant who fails to make the deposit within the time specified forfeits a place in the entering class and another application is not accepted for the following academic year. Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also complete, through student raises, a 3.6-yr dim of the sheep and a successful vaccination against smallpox prior to registration.

2.4(2) Advanced standing

Applications for admission with advanced standing are considered individually.

720-2.5(262) College of engineering

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.6(1) Admission of freshman students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by the university.

Each applicant must have attained satisfactory scores on the university's required examination, maintained a satisfactory cumulative grade-point average, achieved satisfactory rank in graduating class, and successfully completed all prerequisite courses. The university with the approval of the state board of regents shall establish and periodically review specific minimum requirements for admission to the college of engineering. Among the limits to be so determined are test score, grade-point average, class rank and prerequisite courses. These specific determinations will be published in the university catalog.

From applicants who do not meet minimum admission requirements, the director of admissions may offer a review of the applicant's record. (a) Admit unconditionally, (b) admit on probation, (c) require enrollment for a trial period during a preceding summer session or (d) offer admission.

2.5(2) Admission of undergraduate students by transfer

The applicant must submit a formal application and official transcript of college work. Each applicant should have: a. Maintained satisfactory progress in mathematics, b. Attained satisfactory scores on the university's required admission examinations, c. Maintained a satisfactory cumulative grade-point average on all college work undertaken.

From applicants who do not meet recommended requirements, the director of admissions will review individual records and may offer probationary admission.

720-2.5(262) Graduate college

Graduate of any college or university accredited by regional accrediting associations may if the academic record is satisfactory be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Such acceptance is based upon the candidate's completion in residence of work at the university and upon recommendation of the major department and approval by the dean of the graduate college. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within four semester hours of having satisfied all the requirements for the baccalaureate degree at the University of Iowa may be given a tentative admission to the graduate college.

720-2.7(262) College of law

2.7(1) Application for admission

Address all inquiries concerning admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Beginning students may enter the college of law only in the summer session or the fall semester. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

To be considered for admission, an applicant should have attained a cumulative grade-point average of at least 2.3 on college work undertaken.

The graduate college of the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a baccalaureate degree from an approved college of university prior to commencing work in the college of law.

Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have his or her score forwarded to the college of law. The test is given approximately twice per year and may be taken at numerous locations in the United States and throughout the world.

Applicants are urged to take the test in the fall or winter preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not insure admission to the college of law. From the applications received the minimum requirements, the admissions committee of the college of law will select those applicants who, in their judgment, appear to be best qualified for the study and practice of law. The law admissions
committee may require personal interviews of applicants.

2.7(2) Admission with advanced standing

A student student may be eligible for admission if the student (x) has attended a school approved by the Association of American Law Schools; (y) is in good standing at the time of withdrawal, (evidenced by a letter from the dean of the law school from which transferring; (z) meets the admission requirements for beginning students, and (x) has done substantially above average work in the law school the student attended. Where an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing shall comply with the procedures required for admission to the first year class.

720—2.8(262) College of medicine

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Fulfillment of the specific requirements for admission listed below does not ensure admission to the college of medicine. From the applicants meeting the specific requirements, the admissions committee of the college of medicine will select those applicants whose academic record appears to be best qualified for the study and practice of medicine.

Prior to entrance an applicant must:

a. Have received the baccalaureate degree; or

b. Have completed three years of a combined baccalaureate-medicine programs in medical school.

c. Have completed three years of a baccalaureate program which qualifies the applicant to receive credit for all work completed on completion of the first year in medicine; or

d. Have completed three years of a baccalaureate program which includes the general graduation requirements of the college of liberal arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will subject to the general academic requirements for admission to the college of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years prior to seeking admission to this college of medicine will be considered by the admissions committee only under exceptional conditions.

The college curriculum must include at least three years (equivalent to ninety-six semester hours) including specific required sciences courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind other college work is required in addition to prerequisite sciences because it offers an opportunity to secure a well-rounded education, which is of special importance to those entering the medical profession. To the selection of applicants, preference will be given to those who evidence having of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grades in science. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of medicine.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will also be given to outstanding nonresidents.

Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are requested to complete this test in May or June of the senior year preceding for which they are applying for admission. Students may make arrangements to take this examination through the University of Iowa's counseling service, the University of Iowa.

A personal interview will be required. Applicants will be contacted for the application for required interview. Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance. All applicants must also complete, through Student Health Service, an x-ray film of the chest and succinylcholine test against anaphylaxis prior to registration.

2.8(2) Admission to advanced standing

If their work preparation to entering a college of medicine, would have met entrance requirements of this college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants of high scholastic standing will be considered.

They present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter.

The committee on admission to advanced standing will decide in each case whether examinations in the various subjects will be required.

Applications will be considered only upon receipt of a statement from the dean or registrar of the college from which the applicant courses, showing the exact amount of time the student has spent in the study of medicine, the courses taken, and the grades received, together with a statement of the work preparatory to entering upon the course in medicine.

No advanced standing will be granted to students from other than approved medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.8(3) Unclassified students

Applicants for admission to the college of medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such course or by action of the faculty upon recommendation of the professor in charge of the course.

720—2.9(263) College of nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants for admission to the college of nursing must present a minimum of thirty-three semester hours completed in an accredited college. For admission to the college of nursing an applicant must have:

1. Completed specific course work as prescribed by the faculty of the college.

The director of admissions will provide a list of acceptable colleges.

2. Completed the American College Tests.

3. Passed satisfactorily on all courses.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not ensure admission to the college of nursing. From those applicants meeting the minimum requirements, the admissions committee will select the applicants whose, in their judgment, appear to be best qualified.
720—2.10(262) College of pharmacy

2.10(1) General basis for admission

Fulfillment of the specific requirements for admission does not assure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who, in their judgment, seem to be best qualified. Applicants for admission to pharmacy should have graduated from an approved high school or have an equivalent amount of training.

2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include thirty-two semester hours of college level work exclusive of credit in military and air science and physical education. The thirty-two semester hours must include:

Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts at the state University of Iowa. Applicants from other institutions may meet this requirement by presenting six semester hours of credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour course in communication skills.

Inorganic chemistry and qualitative analysis, eight semester hours.

College mathematics, eight semester hours.

Physics or zoology, eight semester hours.

Students from other institutions may substitute a comparable eight-semester-hour course in biology in lieu of zoology.

Military or air science (if available), zero to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline

To be considered for admission to the college of pharmacy, students must have earned a 2.0 or C average on all college work undertaken. The minimum grade-point average of 2.0 is based on the state University of Iowa's marking system in which the grade of "A" is equivalent to 4.0 points. Applications for admission and the required official transcripts should be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may if their college academic average is acceptable be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

720—2.11(262) College of liberal arts

Applicants for admission to liberal arts must meet the rules that are common to the three state institutions in Iowa as listed in 1.1(262), 1.3(262) and 1.9(262).

720—2.12(262) College of education

Students at the university desiring provisional work in education are registered in the college of liberal arts or the graduate college. Requirements for permission to take teacher training courses are listed in the university catalog.
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