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The University of Iowa General Catalog 1986-88

University of Iowa

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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 Booklet and The Iowa Graduate Experience also include information on admissions, loans, 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 associative preference. For additional information on nondiscrimination policies, contact the Coordinator of Title IV and Section 504 in the Office of Affirmative Action, telephone (515) 335-6474, 208 Jessup Hall, The University of Iowa, Iowa City, Iowa 52242.
# University Calendar

## Fall Semester

<table>
<thead>
<tr>
<th>1986</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>August 25</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 27</td>
</tr>
<tr>
<td>University holiday</td>
<td>September 1</td>
</tr>
<tr>
<td>Homecoming</td>
<td>October 11</td>
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<tr>
<td>Thanksgiving recess begins</td>
<td>November 25</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 27-28</td>
</tr>
<tr>
<td>Classes resume</td>
<td>December 1</td>
</tr>
<tr>
<td>Classes end</td>
<td>December 12</td>
</tr>
<tr>
<td>Examination week</td>
<td>December 15-19</td>
</tr>
<tr>
<td>Commencement</td>
<td>December 20</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 25-26</td>
</tr>
</tbody>
</table>

## Spring Semester

<table>
<thead>
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<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>University holiday</td>
<td>January 1</td>
</tr>
<tr>
<td>Registration begins</td>
<td>January 15</td>
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<tr>
<td>Classes begin</td>
<td>January 19</td>
</tr>
<tr>
<td>Foundation Day</td>
<td>February 25</td>
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<tr>
<td>Spring vacation begins</td>
<td>March 20</td>
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<tr>
<td>Saturday Classes only meet</td>
<td>March 21</td>
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<tr>
<td>Classes resume</td>
<td>March 30</td>
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<tr>
<td>Classes end</td>
<td>May 8</td>
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<tr>
<td>Examination week</td>
<td>May 11-15</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 16</td>
</tr>
<tr>
<td>University holiday</td>
<td>May 25</td>
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</tbody>
</table>

## Summer Session

<table>
<thead>
<tr>
<th>1987</th>
<th>1988</th>
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</thead>
<tbody>
<tr>
<td>Renovation</td>
<td>June 8</td>
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<tr>
<td>Classes begin</td>
<td>June 9</td>
</tr>
<tr>
<td>University holiday</td>
<td>July 3</td>
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<tr>
<td>Classes end</td>
<td>July 31</td>
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<tr>
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The University of Iowa is a leader in American higher education. Recognized for its many historic ties, it has won international recognition for its wealth of activities 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 undergraduates, graduate, and professional students with distinguished teachers and scholars in a cross-disciplinary intellectual community.

It was the first public university in the nation to admit men and women on an equal basis and the first institution of higher education to accept creative work in painting, writing, music, and art as an thesis for advanced degrees. 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 African American studies;
- 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 communications programs;
- World-renowned research in hydraulics engineering.

Liberal Arts: The Heart of Learning at Iowa

Undergraduate education leading to the bachelor's degree is at the heart of the Iowa program. 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 largest enrollment among the University's ten colleges, it also is the entry point for most students, including those who later transfer into one of the other professional colleges. A program of study in liberal arts is considered "education for life" at the University of Iowa.

Professional education is provided through the colleges of Business Administration, Dentistry, Engineering, Law, Medicine, Nursing, and Pharmacy. With its strong undergraduate programs, the University enjoys an appropriate balance between academic and professional 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 Fulbright Awards. Faculty bring 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 reacts not to all segments of society. While it enrolls students who are high achievers, it is not an exclusive institution. Outstanding minority enrollments are encouraged and the University enables students to study abroad in countries. Enrollment for fall 1986 totaled 29,611 students. These students were from 63.5 percent from Iowa students, 18.2 percent from out-of-state residents, 5.5 percent from in-state residents, and 5.5 percent from out-of-state residents.

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 40 centers and institutes, as well as major library resources, where 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 stimulating and engaging programs for the arts, 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 exhibitions year around. And 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 600,000 persons from Iowa and other states every year. Specialized care is provided by more than 1,000 physicians and specialists in more than 70 registered hospitals, while 4,000 employees and support staff.

In athletics, the Iowa Hawkeyes enjoy national recognition and enduring fan loyalty as members of the Big Ten athletic conference. Iowa often takes intercollegiate sports for women and men for men.

The University is located on 1,100 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 Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa's territorial government from 1842 until 1846, and then housed the legislature and government offices of the state of Iowa until 1867, when the state government was moved to Des Moines. Various University offices and departments were later housed in Old Capitol, which was restored as a National Historic Landmark and opened to the public in 1978.

A new, major attraction and educational facility at the University of Iowa is the 150,000-square-foot facility in the Museum of Natural History in Macbride Hall that opened to the public in 1982. The 100,000-square-foot facility, the largest of its kind in Iowa. Iowa is located on 1,100 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 Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa's territorial government from 1842 until 1846, and then housed the legislature and government offices of the state of Iowa until 1867, when the state government was moved to Des Moines. Various University offices and departments were later housed in Old Capitol, which was restored as a National Historic Landmark and opened to the public in 1978. A new, major attraction and educational facility at the University of Iowa is the 150,000-square-foot facility in the Museum of Natural History in Macbride Hall that opened to the public in 1978. The 100,000-square-foot facility, the largest of its kind in Iowa, is located on 1,100 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 Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa's territorial government from 1842 until 1846, and then housed the legislature and government offices of the state of Iowa until 1867, when the state government was moved to Des Moines. Various University offices and departments were later housed in Old Capitol, which was restored as a National Historic Landmark and opened to the public in 1978. A new, major attraction and educational facility at the University of Iowa is the 150,000-square-foot facility in the Museum of Natural History in Macbride Hall that opened to the public in 1978. The 100,000-square-foot facility, the largest of its kind in Iowa, is located on 1,100 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 Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa's territorial government from 1842 until 1846, and then housed the legislature and government offices of the state of Iowa until 1867, when the state government was moved to Des Moines. Various University offices and departments were later housed in Old Capitol, which was restored as a National Historic Landmark and opened to the public in 1978. A new, major attraction and educational facility at the University of Iowa is the 150,000-square-foot facility in the Museum of Natural History in Macbride Hall that opened to the public in 1978. The 100,000-square-foot facility, the largest of its kind in Iowa, is located on 1,100 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 Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa's territorial government from 1842 until 1846, and then housed the legislature and government offices of the state of Iowa until 1867, when the state government was moved to Des Moines. Various University offices and departments were later housed in Old Capitol, which was restored as a National Historic Landmark and opened to the public in 1978.
Learning at Iowa
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's academic life, with 23 schools and more than 10 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 1,200 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. The rest are students from other 49 states and 88 foreign countries.

About 75 percent of the University's entering freshmen had a 3.0 average or above in high school. Approximately 89 percent of them rank in the top third of their high school classes and about 24 percent rank in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. Almost all full-time students and some students with some form of employment: one-third have education loans. One of ten undergraduates and one of five freshmen have scholarships. Most scholarships are awarded on the basis of demonstrated 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. To meet the needs of a diverse and often busy population, opportunities include mini-courses, conferences, 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 Bachelor of Liberal Arts and Sciences (B.L.A.S.) 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 cooperation 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 Nursing, Doctor of Dental Surgery, Juris Doctor, Master of Comparative Law, Doctor of Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Arts in Teaching, Education Specialist, Doctor of Musical Arts, Doctor of Pharmacy, and Doctor of Philosophy.

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 (C.I.C.).

Various colleges and schools of the University are members of accrediting associations 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

- Journalism and Mass Communication—American Council on Education in Journalism and Mass Communications
- Library and Information Science—American Library Association
- Music—National Association of Schools of Music
- Social Work—Council on Social Work Education

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 Professional Development
- Hospital and 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
Highest distinction—next highest 3 percent
Highest distinction—next highest 5 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 3.25 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 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 undergraduates, 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
Phi Beta Kappa, Sigma Xi, Mu Alpha Theta, 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 Points/Semester
HorD Definition
A (4) superior average
B (3) above average
C (2) average
D (1) below average but passing
F failing
H* honors
I* incomplete
N* unsatisfactory
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 numerical grading system.

Numbering of Courses
Each course in the regular University curriculum has an identifying number preceded by the number of the college, department, or program that administers the course. For example, "21" is the code for the course numbered 2 in the Department of Biology (2), entitled "Introduction to Biology." Course numbers below 100 designate courses primarily for undergraduates; numbers 100 to 59 designate courses for undergraduates and graduates; and numbers 600 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
61 Fixed Prosthodontics
62 Operative Dentistry
63 Endodontics
64 Removable Prosthodontics
66 Oral Pathology and Diagnosis
67 Oral and Maxillofacial Surgery
68 Dental Hygiene
69 Orthodontics
70 Pediatric Dentistry
72 Periodontics
111 Preventive and Community Dentistry
112 Denistry Nondepartmental
114 Family Dentistry

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

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

College of Law
0 Nondepartmental Courses
69S Bachelor of General Studies Courses
L Lakeside Laboratory
1A Fundamentals
1B Elements of Art
1C Ceramics
1D Design
1E Art Education
College applicants must pay the fee unless they have earned a degree from The University of Iowa. Application fees are not refundable to 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 to obtain 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 session, December 1 for spring semester.
- College of Dentistry—November 30. 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 applications are accepted 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. Departmental may have earlier deadlines, so an 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, spring 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 Colleges 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.
- Dental Hygiene Program—March 1, fall semester only.
- Pharm. D. Program—February 1, fall semester only.
- Physical Therapy Certification 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 non-residents 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 colleges of Dentistry, Law, or Medicine are required to take admission 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 fall semester (August); September 1 for spring semester (January).
- College of Engineering—March 1 for summer session (June); March 1 for fall 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 550 is required for admission to the Graduate College. Newly admitted 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 should 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 the required EFL course work prior to enrolling in the rhetoric course that appears in their initial graduation progress report.

Medical Information
The Student Health Services provides health care to the student enrolled. 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 are entitled to the medical history forms after they are admitted to the University. Completed medical history forms should be returned to the Student Health Services. A registering student must also have a valid health certificate.

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 programs, the campus environment, and transfer policies.

Programs are conducted at The University of Iowa and at community colleges 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 often 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 as well 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 or four years of social studies and humanities course work;

At least three years of science;

At least two years (but preferably four) of a foreign language.

Campus Visits
The Admissions Visitors Center is located at 250 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 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 enroll at either of the other two Regents universities for University of Iowa resident credit. Regular, out-of-state students in good standing 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, since the dean of the college must approve the acceptance of such credits if they are to apply to the major and because some courses may not be equivalent. It is strongly recommended that the student contact the academic department at the home university for advice prior to registration. The Dean of the College and the Registrar will review all courses accepted for transfer.

Payment of Student Accounts
Tuition and fees, board, room, and other University residence hall or fraternity housing, expenses, and such incidental University expenses as library and parking fees, are payable on an installment basis, with the first installment due on September 10.

The University's schedule of tuition and fees for full-time students, per semester, for the academic years 1986-87 is as follows:

<table>
<thead>
<tr>
<th>Type of Fee</th>
<th>1985-86</th>
<th>1986-87</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>4655</td>
<td>4655</td>
</tr>
<tr>
<td>Nonresident</td>
<td>3,040</td>
<td>3,040</td>
</tr>
<tr>
<td>Graduate</td>
<td>823</td>
<td>823</td>
</tr>
<tr>
<td>Nonresident</td>
<td>3,128</td>
<td>3,128</td>
</tr>
<tr>
<td>Dentistry</td>
<td>3,157</td>
<td>3,157</td>
</tr>
<tr>
<td>Nonresident</td>
<td>3,537</td>
<td>3,537</td>
</tr>
<tr>
<td>Law and Doctor of Pharmacy</td>
<td>895</td>
<td>895</td>
</tr>
<tr>
<td>Nonresident</td>
<td>2,624</td>
<td>2,624</td>
</tr>
</tbody>
</table>

General fees provide for the student's use of the Iowa Memorial Union, libraries, laboratories, and gymnastic; free admission to minor sports events and to student-facility concerts; reduced ticket for admission to University athletic events and theater productions, and to performances by visiting stage and concert artists; subscriptions to the student newspaper, The Daily Iowan, released to housing units, student hospital services, and other student 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 must consult with their appropriate class dean for approval of registration. Students who audit courses are assessed fees based on the lowest credit for which the course is offered that semester.
register for restriction of registration. A $10 fee for non-renewal must be paid within ten days of the restriction date.

Refund Schedule

Students who withdraw from classes according to the following schedule shall be entitled to a refund of the tuition costs:

- Prior to the beginning of classes: 100 percent
- Returning within the first week of classes: 75 percent
- Returning from the second week through the fourth week: 50 percent
- Returning after the fourth week: 0 percent

There is no refund of tuition for withdrawals after the fourth week of classes.

Financial Aid

The University of Iowa has an excellent record in helping its students obtain scholarships, grants, loans, and other forms of financial assistance. Approximately 65 percent of Iowa students receive some form of aid. The Office of Student Financial Aid helps students sort through the many forms of aid available.

Application Procedure

In December, newly admitted students receive a financial aid application packet with explicit instructions on how to complete the financial aid filing process. All students are encouraged to apply for aid. Many factors are taken into consideration in determining eligibility for aid, and help may be available.

Students must be accepted for admission to be considered for financial aid at the University. To determine eligibility for need-based aid, the parent must provide information about their financial situation. Students must submit either the Financial Aid Form (FAF) to the College Scholarship Service (CSS) or the Financial Aid Statement (FAF) to American College Testing (ACT) by the March 1 priority deadline. Students should request that CSS or ACT send a copy of the need analysis to the UI Office of Student Financial Aid.

Filing the FAF or FAF and submitting all other required documents to the UI Office of Student Financial Aid by the priority deadlines assures that students will be considered for all need-based awards offered by the University.

The FAF or FAFS may be obtained from a high school or community college counselor. The FAF and FAFS are good for only one academic year, and students must reapply for aid each year.

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:

1. The University determines the estimated costs for an academic year, which includes room and board, tuition, fees, books, and personal expenses.
2. 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.
3. Financial need is determined by subtracting the expected family contribution from the University's estimated costs.
4. 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 sufficient 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 FAFS.

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

Minimum Semester Hours

Undergraduates must earn 20 semester hours per academic year (fall, spring, and summer sessions combined). Graduates must earn 12 semester hours per academic year.

Minimum Grade-point Average

Undergraduates and graduates must maintain the minimum grade-point average requirement of the colleges in which they are enrolled.

Definition of Eligibility: Undergraduates must complete their bachelor's degree within six academic years (12 semesters) or 124 semester hours. Graduates working towards master's degrees must complete their programs of study within four academic years (eight semesters) or 48 semester hours. Graduates working toward combined master/doctoral degrees must complete their programs of study within eight academic years (16 semesters) or 96 credit hours.

Financial aid eligibility will be cancelled for one or more of the following reasons: exhaustion one's of duration of eligibility; failing to meet the requirements for semester hours completion and/or 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 Financial Aid Handbook, 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 UI Office of Admissions.

The Iowa Center for the Arts Scholarship

The Iowa Center for the Arts Scholarships are awarded annually on the basis of academic achievement and artistic merit. Each department (art, dance, theatre, and music) awards one scholarship to an entering freshman. The scholarship is the highest award offered by the College of Liberal Arts and Sciences and is awarded to freshman. A maximum of four $2,500 awards are awarded annually. 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 guidance counselor, the UI Office of Admissions, or the UI Office of Special Support Services.

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 of $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 demonstrated the highest level of academic excellence in the nation.
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 Honors Program by achieving a composite ACT score of 29 or above are recognized as Freshman Scholar Honors 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 28 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 need is based on financial need 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 have 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 $280 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.S. Special Support Services program who show exceptional financial need. Parental income and assets information must be reported. The FAF/SFS determines eligibility for this program.

Graduate Tuition Grants
Graduate Tuition Grant 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 the student's need. The amount of the loan 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 loan to students to help them to finance their college expenses through a lender such as a bank, credit union, or savings and loan association. These loans are insured by a guarantee agency in each state and reimbursed 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. GSL eligibility is available from the lending institution.

Health Professions Student Loan
Health Professions Loans are long-term federal loans for students enrolled full time in the Colleges of Medicine, Dentistry, or Pharmacy. Amounts available depend on federal funding. The interest rate is 6 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 half-time students. 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 waiter, 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 currently $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 as the second floor of Union Hall. The building is open from 7:30 a.m. to 5 p.m. Monday through Friday, and 8 a.m. to 1 p.m. on Saturday.

The student newspaper, The Daily Iowan, also has job 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 federal aid 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 FIS 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 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).

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
Student Life at Iowa

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Black Action Theater
Academic Services

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 who are open in major and preprofessional 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 dean or their designates. Graduate students are advised by their department heads and the Graduate College deans.

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 Undergraduate Academic Advising Center are trained 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.

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

Cooperative Education

The Cooperative Education staff works with students, faculty, and employers to integrate work with study and contribute breadth of knowledge to students' education through supervised work experiences. Participation in Cooperative Education enhances students' ability to apply education in professional settings, earn professional experience before graduating, explore various major/career options through multiple Cooperative Education experiences, and earn from professional schools or areas not covered in classes.

Students from the University's ten colleges must meet eligibility requirements of their own department or college and receive faculty approval to participate. Opportunities are available year-round in a wide variety of organizations to undergraduate, graduate, and professional college students. The Office of Cooperative Education is the central academic support office that helps individual colleges and departments provide educational work experiences for students.

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 students/scholar program and for the study abroad program. It also has developmental responsibilities in international studies and technical cooperation activities. The OIES worlks to enrich the campus by adding an international dimension to it. The OIES promotes development of and cooperation among the various international studies—foreign language and area studies, comparative and regional studies, and foreign language departments. It also assists faculty and students who wish to 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 office for the Midwest Universities Council 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, helps students select study-abroad programs to complement their on-campus academic programs, and helps arrange that they receive the correct credit for such activities. Students also obtain information and applications for the Fulbright, Marshall, and Fulbright Awards at the OIES.

Foreign students advise service, information, counseling, and services related to orientation, immigration regulations, financial aid, and liaison with foreign governments, sponsoring agencies, and help with problems and questions in areas.除 academic advising. They sponsor or support educational programs, such as the Friends of International Students, the Conversational English Partners, and lunch time discussion that foster constructive interaction between students and scholars from other countries and their domestic counterparts.

Placement Services, Career Information

Business and Liberal Arts Placement Office
The Business and Liberal Arts Placement Office provides programs and services to assist seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Along with on-campus interviews that take place in the fall and spring, students and alumni can register for an subscription to a weekly Job Bulletin and a reference file service.

The office offers programs on resume preparation, job hunting and interviewing skills and provides individual advising with professional staff. A reading room offers information on employers, salaries, and employment trends.

In addition to placement services for liberal arts and business students, the office also coordinates placement information among the other collegiate placement centers on campus. Offices are located in Phillips Hall and The Iowa Memorial Union.

Career Information Services
The Career Information Services office is located in the Iowa Memorial Union. It provides advising and information to help students plan their careers.

Career Planning
Advisors assist students in all stages of the career-planning and decision-making process. Individual advising and career seminars help students define their interests, abilities, values, and work and lifestyle preferences. Advisers also help students explore occupational information, investigate career options, and develop applications strategies for obtaining employment in the immediate and long-term career objectives.

Career Resource Center
The Career Resource Center is a self-help career information center. It provides information on job market trends, career options, academic requirements for specific careers, work experiences, places of employment, salary ranges, advancement opportunities, and geographical regions of the country. The center also maintains information on developing strategies for finding jobs, researching organizations and agencies, defining job objectives and writing resumes and cover letters; and improving interviewing skills. An adviser is on duty to help students use the material.

No appointments are necessary.
Mathematics Tutorial Lab

The Mathematics Tutorial Laboratory, sponsored by the Department of Mathematics, serves as a teaching tool for students who do not have adequate high school mathematics preparation for the University's required math course. The primary purpose of the math lab is to provide tutoring to students enrolled in M2M1 Basic Algebra I, M2M2 Basic Algebra II, M2M1 Quantitative Methods I, and M2M4 Quantitative Methods II. As staff time permits, the math lab also provides tutoring services to students in other Precalculus mathematics courses.

The math lab is staffed by professional staff, faculty, and graduate student teaching assistants who are hired to train 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 students, the 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 data.

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

The lab also offers 10 Rhetoric, a core-semester, two-hour-half-hour course for students who need exceptional help preparing for college-level reading. SP 0 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 help the students become more confident and capable 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 (10 Rhetoric) before or after taking a required rhetoric course, or transfer to 10 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 open request to the Office of the Registrar. Fees are $3 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 attendance and 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 Dimension in Learning, the Afro-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 motels, hotels, motels, and apartment complexes, and coordinates a weekend matching service. The center is open seven days a week.

Campus Programs and Student Activities

The Office of Campus Programs and Student Activities (COPSA) 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 COPSA 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 OCPA 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 staff. They include...
planning traditional events such as Homecoming and Christmas as well as new campus programs. The Intercollegiate Athletics program offers a wide range of sports and activities for all interests. The University also sponsors a variety of intramural and recreational activities, including basketball, volleyball, soccer, tennis, frisbee, and running. The Intercollegiate Athletics program is governed by the Board of Control of Athletics, which is composed of twelve members appointed by the President of the University and includes faculty, administrative staff, and students.

Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic teams for women in basketball, cross-country, field hockey, golf, gymnastics, soccer, softball, swimming and diving, tennis, track and field, and volleyball. These teams compete in the Western Intercollegiate Conference for Women's Athletics (WIAA) and the National Collegiate Athletic Association (NCAA). Scholarships are available in all sports for women's intercollegiate athletics. The Intercollegiate Athletics program is governed by the Board of Control of Athletics, which is composed of twelve members appointed by the President of the University and includes faculty, administrative staff, and students.

Sports and Recreation

The Intercollegiate Athletics program offers a wide range of sports and activities for all interests. The University also sponsors a variety of intramural and recreational activities, including basketball, volleyball, soccer, tennis, frisbee, and running. The Intercollegiate Athletics program is governed by the Board of Control of Athletics, which is composed of twelve members appointed by the President of the University and includes faculty, administrative staff, and students.

Intercollegiate Athletics for Men

The University of Iowa sponsors nationally competitive intercollegiate athletic teams for men in basketball, cross-country, field hockey, golf, gymnastics, soccer, softball, swimming and diving, tennis, track and field, and volleyball. These teams compete in the Western Intercollegiate Conference for Men's Athletics (WIAA) and the National Collegiate Athletic Association (NCAA). Scholarships are available in all sports for men's intercollegiate athletics. The Intercollegiate Athletics program is governed by the Board of Control of Athletics, which is composed of twelve members appointed by the President of the University and includes faculty, administrative staff, and students.

Iowa Memorial Union

The Iowa Memorial Union is the hub of student life. It includes the Campus Information Center, the University Book Office and the Chico's Cashiering Service, the Office of Campus Programs and Student Activities, a college bar with live entertainment, and fitness facilities. It offers a variety of food services, a recreational area with billiards and other games, an arts and craft resource center, a bookstore, and a variety of retail stores. It is open to students, faculty, staff, and visitors.

Student Health Services

The Student Health Services office is located in the Harre Building on the University campus. The office offers primary care services, including physical exams, immunizations, and treatment for minor injuries and illnesses. The office also provides mental health counseling services, including counseling for stress, anxiety, and depression. The office is open Monday through Friday, and appointments are recommended. The office is staffed by licensed physicians, nurses, and other health professionals.

Veterans Services

The Office of Veterans Services is located in the Slott Building on the University campus. It provides information and resources for veterans, including information about veterans benefits, educational benefits, and employment opportunities. The office is open Monday through Friday, and appointments are recommended. The office is staffed by licensed counselors, and their services are free to registered University students.
Housing

Fair Housing Policy

The following is the University’s statement on fair housing practices: “It is and shall be the firm policy of the University that households, both rental or personal, shall not discriminate on the basis of race, color, national origin, sex, handicap, familial status, religion, or sex as a victim of sexual harassment, or on the basis of sexual orientation. The University is committed to compliance with all federal laws and regulations.”

University Residence Halls

Residence hall programs, policies, procedures, and employment practices are consistent with the University human rights policies, the State Board of Regents non-discrimination 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 quadraple rooms with all or partial board are available in the Grand Avenue Residential Halls (west campus), which include Hill Hall, Quadsquare, South Quad Square, Quad Square, and Quad West halls. In addition, there are many other dormitories, study areas, gym rooms, coin laundry facilities, and small stores in or available to each residence hall. Computer terminals, reference materials, browsing 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 resident 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. Many courses are taught in residence halls. Academic advising centers and tutorial sessions are also available.

Students who do not live in residence halls may purchase full 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 it to the application office. A check for $50 to the University Housing Assignment Office, Hodge Hall, will be returned with the acceptance of the application. Students who do not receive a room assignment until they have been admitted to the University. However, students may apply for housing at the same time that they apply for University admission. Roommate assignment is made without regard to race, color, national origin, or religion.

The residence hall application/contract and $50 advance payment constitute a contract offer. An application may be withdrawn by contacting 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 cannot secure 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, for full board 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 Purbahn complexes.

Rents for 1986-87 range from $148.25 to $135.75 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 furnished. 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 in 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 accommodations range to 45 men.

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

Professional Interfraternity operating chapter houses are Alpha Chi Sigma (Cherubim), Alpha Kappa Kappa (medicine), Delta Sigma Delta (dentistry), Phi Beta Pi (medicine), Phi Bho Sigma (medicine), and Phi Omicron (law).

The 16 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Alpha Delta Pi, Alpha Gamma Delta, Alpha Kappa Kappa, Alpha Lambda Delta, Alpha Phi, Alpha Sigma Phi, Alpha Sigma Sigma, Alpha Phi Omega, Delta Delta Delta, Delta Phi Epsilon, Delta Phi Iota, Gamma Phi Beta, Gamma Kappa Delta, Kappa Delta Rho, and Phi Kappa Phi.
Code of Student Life

As members of the academic community, students are encouraged to develop a capacity for critical judgment and to engage in a 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 with responsibility. The University has developed a Code of Student Life to provide and safeguard the rights of every individual student to exercise this freedom to learn without undue interference by others. The Code applies only where a student's conduct has adversely affected a University process or function or some distinct 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 brings together in common pursuit of its educational goals persons of many nations, races, and creeds. The University is guided by the principle that in any aspect of its programs there be differences in the treatment of persons because of sex, creed, color, national origin, age, sex, and any other classifications not. Warrant the persons of consideration as an individual, and that equal opportunity and access to facilities 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 expected 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 extra-curricular 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 first through the informal mechanisms established in each college for this purpose. Although there is some variation among colleges, these mechanisms generally involve the following steps:

- The student should first attempt to resolve the issue with the faculty member involved.
- If a satisfactory outcome is not achieved, the student may take the matter to the collegiate dean.
- In addition, graduate students should consult with the appropriate dean for academic affairs in the Graduate College concerning ways to resolve complaints.

Some colleges (Business, Agriculture, Dentistry, Education, Engineering, Law, and Nursing) also have established ombudsperson systems as an alternative mechanism for handling student complaints. Information concerning the ombudspersons established in a specific college is available in the college dean's office or Collegiate Associations Council (CAC) office.

If a student complaint concerning faculty actions cannot be resolved through the informal mechanisms available, the student may file a formal complaint, which will be handled under the procedures established in section 26.356 of the University Operations Manual.

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 sexually harassing or coercive. Individuals who feel that they have been the object of such harassment should advise their supervisor, dean, or 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 be discussed with anyone else without the complainant's permission.
- If permission is given to pursue and investigate the complaint, such an investigation must be conducted by the head of the major administrative unit in which the complaint was brought or by a designee of that administrator.

In conducting such an investigation, the right to confidentiality, both of the complainant and of 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 valid, 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 teaching is to have the relevance, truthness, and effectiveness expected of a distinguished institution of higher learning.

The University builds on the term "research" to denote in all fields, imaginative originality, whether in the fine arts or in the sciences, at a common character and significance in the overall intellectual life of the institution.

The Office of the Vice-President for Educational Development and 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. This office has an interlocking relationship with the Graduate College because of the all University character of the college and the 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 actively recognized for their personal involvements in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences, social humanities, and two from the faculty at large. The council is charged with consideration to matters such as the establishment and enforcement of policies regarding the University's research and creative activities, the review of proposals and procedures concerned with securing and allocating funds for support of research and creative activity, and other matters related to the general research and creative functions of the University and the health of its scholarship on the campus.

Programs

With the advice of the University Research Council and after appropriate involvement of officers and committees of the University, the Office of 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 (other than members of the schools of 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 leads to the development of a full-funded 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 costs of supplies, equipment, proposal writing, and clerical and related digitization for 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 and expenses of visiting lecturers.

Services

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

Central Research Facilities

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

Computer-Assisted Image Analysis Facility

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

Two Gould Dena 4400 imaging Processing systems and a 3500 Evans and Sutherland system are in operation, along with two MicroSpec II minicomputer systems, an Ekco 2030 digital camera, and various video storage peripherals. Acquisition software includes images - 1000, KORTAN, and Pascal compatible as well as the Gould Dena Library of Image Processing packages.

The facility has the capacity to digitize images from microscopic slides, autoradiograms, photographs, and video signals. Mass 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 by 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 PWS-5A electron microprobe X-ray analyzer with three crystal spectrometers, a 10(4) solid state detector system, an automation system, and a digital beam-control system. The electron beam may be scanned by analog or digital control, and image modes are available for backscattered electrons, secondary electrons, sample current, transmitted electrons, and characteristic X-rays. Automated image analysis is possible for the location, sizing, and chemical characterization of small objects (0.1-100 micrometers) on the scanned image. This instrumentation incorporates an environmental scanning electron microscopy system, which permits the rapid qualitative or quantitative analysis of bulk specimens to 200 am.

Located in the Dental Science Building, the EPMA facility is available to all faculty, staff, and students in their research programs. Experienced investigators subsequently 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 and electron microscopy. Equipment includes a Joel JSM-5EC scanning electron microscope equipped with a Kenka X-ray microanalysis system, a Hitachi H-400 transmission electron microscope equipped with STEM and a Kenka X-ray microanalysis system, a Balzers 301 freeze-fracture/freeze-etch apparatus, a vacuum system, and a dedicated specialized system for cryoprocessing, light microscopes, centrifuges, ovens, and fully equipped photographic darkrooms.

The facility also provides all solutions and supplies necessary for investigations involving optically cleared, specialized staining and embedding techniques, negative stain, and other metal-coating, autoradiography, enzymological, and immunocytochemical, morphometry, sample preparation, and SEM and freeze fracturing, the preparation of material
The facility is intended to serve both the experimental and the service 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 Bowes 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 FACSY), which is interfaced to a computerized data acquisition and storage electronics.

The flow cytometer will measure any cytologically detectable cellular property, such as fluorescence or size, to generate population distributions. Up to twenty parameters may be concurrently examined per cell. A variety of cellular macromolecules can be quantitated. Detectable parameters include two spectral regions of fluorescence, narrow-angle light scattering, and fluorescence polarization anisotropy. Cell isolation is done with a argon ion laser with ultraviolet capability. The instrument will physically isolate any unidentified cell population to yield viable cells for subsequent experimental use. The facility provides a complete set of instrumentation for staining cells with fluorochromes, tissue culture vessels, and a 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 300 spectrometer forms the basis of the High Field NMR Facility. The persistent magnet operates at 96.6 kilogauss, and the frequency of 300 MHz is utilized for proton observation. Very high speed proton relaxation and sensitivity can be achieved for study of complex molecules in solution. Multinuclear, variable temperature, and selective pulse experiments are possible. Both hard and soft deuterium data are stored. Either digital or standard X-Y plotting is available. Proton NMR spectra are recorded in form sample tubes, carbon-13 spectra are obtained in 5mm or 10mm tubes, and heteronuclear spectra are observed in 5mm tubes. Time-resolved and flow-through 19 decoupling of carbon-13 spectra is possible. For the casual user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user after appropriate training period. The facility is located in the northwest ground-floor area of the Chemistry-Boony Building.

High Speed Computational Facility
The High Speed-Computational Facility, located in the Engineering Building, fills the gap between conventional computing provided by the University's departmental equipment and supercomputers provided at national centers. A joint venture of the Center for Computer-Aided Design and Working 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 offsite 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 Superminicomputer with associated peripherals and a CRAY-1 High Speed Arithmetic Processor. Communications equipment provides campus-wide terminal access.


Large Scale Fermentation Facility
The Large Scale Fermentation Facility, located in the Bowes Science Building, makes possible the large-scale growth and recovery of such 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 thermophilic bacteria; and it is one of only five such facilities able to grow extremely thermophilic bacteria at 70-100 degrees C. The largest vessel in the facility—100 liters—a rating for strict containment of genetically engineered organisms.

The facility director is available for consultation on medium composition, fermentation conditions, and growth strategies. Further services are provided in areas such as inoculum preparation, medium preparation, specific inoculation, 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 wide variety of modern laser instrumentation. In particular, state-of-the-art (N'Ar gas laser and Krypton laser with ultraviolet capabilities) are employed, either alone or in cooperation with a Tunable Dye Laser System. Coverage of visible and near infrared regions of the spectrum. Each CW Laser is routinely operated single mode with a line width of one thousandth of a mode for arbitrary interferometry. This instrumentation is located in a spacious laboratory that occupies the entire first floor of the southeast wing of the Chemistry-Boony 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 Bowes 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 hydromechanical properties.

The laboratory 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 internal and external sources of funding for study and research projects by facility and graduate students. Graduate students may inquire about funds for advanced study in the United States or abroad.

The division also publishes "Research and Development Bulletin," a newsletter for facility/staff members, fax, that contains progress and deadline information and current special project directed to sources of funds for graduate study and research. The fax newsletter is available in departmental offices. Author inquiries about graduate opportunities are welcome at the office.

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 applications for research, and provide other assistance to investigators. The staff also assists in processing applications through the University and in locating the
common distractions where acuity 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 archives and to mentor University scholars working in related areas of research. Collaborative benefits from departmental and institutional ties at University House is 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.

Formal opportunities for collaboration are offered by University House seminars and colloquium lectures in the cafeteria.

In addition to promoting faculty development in general, University House seeks to bring together University centers, institutes, committees, 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 laundry. Also available is Oakdale Hall, a copy center, cafeteria, and a library. Oakdale Hall is open during library hours. A freedom of expression exists in the cafe, as is the frequent CAMBUS service that connects University House with the main campus. All visiting scholars enjoy full borrowing privileges at University libraries and access to University recreational facilities.

Video Center

The University Video Center provides high-quality video services and facilities, including those necessary to support 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 personnel and facility resources to assist units in the purchase of equipment and supplies, and in production and postproduction activities. Additionally, the center provides a video system design and maintains guidelines for equipment standardization.
Institute for Economic Research
See the "College of Business Administration" section of the Catalog.

Institute for Insurance Education and Research
See the "College of Business Administration" section of the Catalog.

Institute for School Executives
Contact the Division of Educational Administration in the College of Education for information.

Institute of Agricultural and Urban Health
See "Preventive Medicine and Environmental Health" in the "College of Medicine" section of the Catalog.

Institute of Hydraulics Research
See the "College of Engineering" section of the Catalog.

Institute of Public Affairs
See the "Continuing Education" section of the Catalog.

Ira N. McGladrey Institute of Accounting Research
Contact the Department of Accounting in the College of Business Administration for information.

Centers
Alzheimer's Disease Research Center
Contact the College of Medicine for information.

Asthma and Allergic Diseases Center
Contact the College of Medicine for information.

Cancer Center
See the "College of Medicine" section of the Catalog.

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

Center for Computer-Aided Design
See the "College of Engineering" section of the Catalog.

Center for Educational Experimentation, Development, and Evaluation
Contact the College of Education for information.

Center for International and Comparative Studies
See the "Graduate College" section of the Catalog.

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

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

Schizophrenia 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.

Transplant 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.

Collaborative 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.

University Libraries

Reference Sources
Reference Books: Dave R. Bowers

Full-Text Services: University Libraries

Social Science Data Archive: Iowa Research Libraries

Iowa Medicine: Iowa State University

Iowa Science: University Libraries

Iowa Testing Programs: Iowa State University

University Libraries: University of Iowa
Special Resources

Main Library facilities include microform reading rooms, listening rooms for collections of recorded drama, poetry, and speech; seminar and conference rooms; a map center; 讗, 4 graduate students; and individual study rooms for faculty engaged in research.

The Human Relations Area Files consist of full data on a sample of societies throughout the world, and are designed to facilitate comparative studies of social and cultural behavior.

The Leigh Hunt Collection, brought together by Luther A. Brewer of Cedar Rapids, Iowa, is considered one of the most complete in existence. It contains nearly 2,000 manuscript and manuscript letters written by Hunt or to him by his many famous literary friends, 178 association volumes, and 600 editions of Hunt's writings.

The Mark Romney Miniscule Collection of approximately 10,000 volumes is particularly rich in deluxe editions, including many superb bindings. In many cases, it is the only one of its kind.

The French Revolution Collections includes more than 8,000 political pamphlets, chiefly from the years 1786-1799, supplemented by numerous French newspapers and government publications of the time.

The John Springer Collection on typography, given to the University by a long-time Iowa City printer, includes 1,850 volumes of type specimen books, which is important in printing history, and volumes illustrating the art and progress of printing through the centuries.

The "Ding" Duration Collection comprises a combination of poems of interest to poets, for more than 40 years, Ding recorded and commented on the economic, political, and diplomatic affairs of the United States. His caricatures are a valuable pictorial history of this country during the first half of the 20th century. A subject file on the collection exists in the library for reference and research.

The Muggeridge-Lincoln Collection, gathered by Judge James W. Muggeridge of Fairport, is one of the best libraries of Lincolniana in the United States. A number of items in it concern John Wilkes Booth and the trial of his fellow conspirators. Another large group contains reminiscences of people who knew Lincoln. Broadsides relating to the Civil War period have been added.

The "41" Collection is a gathering of rare, special works on diverse subjects, including books of the Renaissance and sixteenth centuries, early Americana, Robinsburg Club Publications, private press books, and selected modern limited editions.

The Manuscript Collections include more than 10,000 individually cataloged letters or manuscript items of English and American authors or historical figures, particularly of the nineteenth and twentieth centuries, in addition to more than 400 inventoried collections of papers, diaries, and correspondence files relating to midwestern economic, political, and agricultural history.

Other special collections include the Hawkeye-Quaker Collection of books dealing with the American Indian, the Levi O. Leonard Collection of manuscripts and documents dealing with history of the Union Pacific Railroad, the History of Hydraulics Collection, the Edison Ford Paper Collection of 18th and 19th century, the Chicago Union Collection, which contains several thousand letters and business documents, diaries from the Mexican-American War, the Blodden Collection of poetry, biographies, criticism, manuscript, and letters written to the contemporary English poet, Edmund Blunden; the History of Science Collection; the Mobbin-Pac Collection of scholarly books relating to stride Allen Poet, the Map Collection, containing more than 250,000 maps and charts, including rare maps and charts, and over 3,500 atlases, gazetteers, and related reference works, and the University Archives.

The John Martin Rare Book Room in the Health Sciences Library houses a collection of approximately 2,000 books on the history of medicine, including a number of incunabula. The nucleus of the collection, which is especially strong in the areas of anatomy and surgery, was donated to the University Libraries by Dr. John Martin, a rustemologist from Carbondale, Iowa.

One of the most recent additions to the rare books collection is the Chel-City Sarcastomy Collection of books on the medical arts. Some 250 books from earlier centuries presently in the collection will be augmented in future years as the collection builds on his collection to the University.

The University of Iowa Health Center

As soon as they have acquired some knowledge in their fields, health profession students begin to learn by doing, following the examples and directions of skilled practitioners who teach while providing health care for thousands of patients from the community, state, and region. The University of Iowa Health Center is simultaneously a center of learning and of service. It serves the largest of the health science centers in the United States.
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 thousands of students in the health disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, pastoral studies, and social work.

University Hospitals and Clinics sponsor residency programs in which 600 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen 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 patients each year. Nearly 15,000 major surgical procedures are performed annually in the hospitals' 21 major operating rooms. Approximately 3,500 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 hospitals' transportation fleet of 16 vehicles travels more than two million passenger-miles each year, transporting 145,617 Iowans. The All-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 hospitals for treatment. Many Iowans owe their lives to this service alone.

More than 6,900 hospital staff members are involved in patient care, 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 1,300 professional nurses.

Other hospital staff members annually provide about 171,000 X-ray examinations and treatments, conduct more than 10,500 laboratory tests, fill more than 1.7 million prescription orders, render more than 62,000 physical therapy treatments, and prepare more than 40,000 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, cancer center, and urology units. The seven-story, 815 million Boyd Tower addition went into service in 1976, providing expanded and replacement facilities for a variety of inpatient and outpatient services. The new $48 million Roy J. Carver Pavilion, opened in honor of a $2 million gift from the late Muscatine industrialist, provides facilities for the comprehensive emergency treatment center; physical therapy departments; endocrinology, biochemistry, and neuroscience inpatient units; cardiology and psychiatry clinics; and laboratories of the Department of Pathology.

The $15 million first phase of the John W. Colfeax Pavilion— named after the hospital's current director—opened in 1982. It consolidates services of the Department of Pediatrics and provides a clinic and faculty offices for the Department of Surgery. A second phase of the Colfeax Pavilion opened in 1985. It houses a new burn center, digestive diseases center, cardiac care center, and beds for neurosurgery patients.

University Hospitals and Clinics collaborate in conducting accredited health professional education programs in dentistry, radiologic technology, medical technology, nuclear medicine technology, hospital pharmacy, physical therapy, physician's assistantship, and cytotechnology. University Hospitals and Clinics sites provide experimental clinical settings for Kirkwood Community College programs in nursing education, orthopaedic physician's assistant, operating room technology, and respiratory therapy.

Of the programs cited above, those conducted through collaboration of the hospitals and the colleges of Medicine and Nursing are described in the appropriate college sections of the Catalog. The following are conducted exclusively by University Hospitals and Clinics staff:

006-001 Radiologic Technology Program 9.5 a.b.

24 consecutive months, eight hours a week in clinics, including radiographic processing, film, X-ray, medical terminology, radiotherapeutics, anatomy and physiology, radiologic technology, and ethics. Flexible hours, located in the Hospitals' Central X-ray Laboratory. Lab 20 hours; clinical rotations 30 hours.

006-002 Orthopaedic Program 9.6 a.b.

Clinical schools of medical education, under graduate, 4 a.b. and resident doctors of the 2,500 patients, on the Department of Medicine, Psychiatry, and neurosurgical services. Required rotation required at least and 18 months of training.

006-003 Radiation Therapy Techniques Program 9.6 a.b.

Theory and techniques of radiation therapy, techniques employed in areas of treatment planning, dosimetry, and use of radiometry/protection equipment in administration studies.

006-004 Ultrasound Technology Program 9.6 a.b.

Principles and methods of using ultrasonic as an imaging modality, special emphasis on ultrasound imaging, obstetrics, gynecology, and clinical ultrasonography. Semester program.

The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored jointly by the Iowa State Department of Health, which provides permanent, salaried, direct employees, 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 external cards to schools to remind parents of the need for regular dental care to children.

Council on Speech Pathology and Audiology

The council coordinates clinical services in speech pathology and audiology offered with the assistance of Iowa hospitals and clinics, the Iowa City Veterans Administration Medical Center, and the Department of Speech Pathology and Audiology.

Dental Service

The dental clinic at The University of Iowa College of Dentistry is 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, education, research, conduct research, and develop curricula and instructional materials for health education programs in the high schools in the largest part of Iowa's 15 area community colleges, but not at a growing number of high schools. The Health Occupations Education staff also assures 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 largest of the departmental libraries is the University Library systems. The University Library System's Health Sciences Library contains more than
University (State) Hygienic Laboratory

As the state of Iowa's environmental and public health laboratory, the University Hygienic Laboratory offers diagnostic, surveillance, analytic, training, and consulting services in bacteriology, immunology, parasitology, industrial hygiene, toxicology, health physics, mycology, and radiation chemistry. It provides complete laboratory program support to the State Department of Health, Bureau of Labor: 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 salt 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, resort, and screening for skin as well as other metalloids in the nusturium and for the HED virus.

Within The University of Iowa, the Hygienic Laboratory provides instruction and training in diagnostic mycology 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 associated with 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 services for children. Among these are the Generic Classification Service, Chronic Disease Prevention Program, Childhood Cancer Registry and Treatment Program, and the Comprehensive Care Program for HIV/AIDS Patients. The Statewide Perinatal Care Program, Iowa Newborn Screening Program, Community Child Health Center Program, and a program for Regional Child Health Specialist Clinics.

As regional Child Health Specialty Clinics (CSSC) conducted in communities throughout the state, Iowa residents are provided with primary and evaluative services in pediatrics, orthopedic, ophthalmology, speech pathology, audiology, physical therapy, nutrition, and clinical and educational psychology. CSSC also support the University of Iowa graduate training program in audiology and speech pathology and provides monitoring and follow-up services on special health problems. The complications may include muscular dystrophy, mental retardation, phenylketonuria, and hemophilia.

University Hospital School

A University-affiliated program that deals with the prevention of developmental disabilities for infants and young adults. The University Hospital School serves as the state program for the Division of Developmental Disabilities within the Department of Pediatrics. It is an integral part of the statewide 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, family, and social work. Physical and occupational therapy, rehabilitation therapy, psychology, nursing, work, special education, and vocational and recreational activities. Outpatient services provide comprehensive evaluation and follow-up of infants, children, and young adults who have problems and disabilities that affect their development. Evaluation and therapy are planned in conjunction with the development of intervention programs. The pediatric and community-based service program is divided into three categories, each of which includes a number of special clinics: Child Development Clinic, Neurodevelopmental Clinic, Metabolic Disorders Management Clinic, and Infant and Young Adult Clinic, which specializes in the assessment and management of these problems.

Infants, children, and young adults may be referred to the inpatient unit as a result of recommendations from one of the outpatient services. Short-term admittance is for the specific needs that can best be accommodated on an inpatient basis. The staff coordinates educational and developmental services with the child's school, social agency, or other state agencies in order to maintain continuity of services while the children are in the unit.

Training activities include pre- and in-service lectures, workshops, practicum, and seminars for a variety of care providers working with sick children or programs for children with special health needs. These activities take place in the University and community settings.

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

Laboratories of the Division of Genetics and biochemistry of the Department of Pediatrics are used extensively in University Hospital School's research, training, and service programs.
University Speech, Language, and Hearing Clinic
Located in the Wendell Johnson Speech and Hearing Clinic at the University of Iowa, Speech, Language, and Hearing Clinic provides diagnostic evaluations and therapy for individuals with speech, language, or hearing problems. Rehabilitation programs for persons who can come to the clinic for a specific service, a summative residential program for children with speech and language disorders, 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 is affiliated with all University of Iowa health sciences colleges, offers unique training opportunities in clinical pharmacology, gynecology, cardiology, radiology, 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 major cultural resource not only for the University community, but 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 facilities include many of the academic units in the College of Liberal Arts, together with the Museum of Art, the Theatre Building (Chopin Memorial Hall, Hamer Hall, The Opera Studio, and Voxman Hall) in the School of Music, and Hansen 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 for many sources, both public and private, is reflected in the physical structures and educational/cultural 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 dated from 1936. Major additions were added in 1969-70, greatly enhancing 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 Evie Hирт, who in 1924 became the first recipient of the Master of Arts degree as studio art at The University of Iowa. The school's Corborone Gallery, located in the Old Music Building, features exhibitions of new and experimental work created at The University of Iowa by major visiting artists. The gallery contains 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 Louise Eliot of Cedar Rapids offered to the University their extensive collection of nineteenth- and twentieth-century paintings, prints, sculpture, silver, and more, 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 2,000 individuals and corporate firms 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 Eliott Collection, nineteenth- and twentieth-century sculpture, drawings, photography, contemporary ceramics, and pre-Columbian art.
One of the most prized collections is the Stanley Collection of African Sculpture, a gift of Elizabeth 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 Lassonde Print Room is a collection of prints and drawings created by printmaker Mauricio Lasansky, former professor of art at the University. Many Lasansky prints are gifts from Weber and Gloria Cohn 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 guided tours of the museum's exhibitions. Catalogs of many exhibitions are available for purchase, Friends of the Museum of Art, a private support group, sponsors receptions, and provides visual and written materials for an active Print and Drawing Study Club.

University Theatres
The Theatre Building houses the Department of Theatre Arts. It is the home of Mooshe 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 a 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 convenient. Its broad, curvilinear shape leads from rehearsal rooms to two music libraries and to the stage of Hansen Auditorium.
In a given year, faculty, students, and student groups present several hundred major concerts, as well as 500 recitals and instrumental recitals are presented by students.

Clapp Recital Hall, with its hand-carved Casavant tracker organ, seats 275 for
The Museum of Natural History is located in the heart of the University of Iowa campus, offering a rich collection of exhibits and educational programs that highlight the diversity and complexity of the natural world. From ancient fossils to interactive displays on the environment, the museum provides a unique opportunity for visitors of all ages to explore the wonders of science.

The museum features a wide range of exhibits, including a natural history gallery that showcases the biology of the ancient world, a geology section that explores the history of the earth, and a section dedicated to the wildlife and ecosystems of the Midwest. Visitors can also take part in hands-on activities and workshops throughout the year, such as wildlife observation tours and interactive science demonstrations.

In addition to its permanent exhibits, the museum hosts temporary exhibitions that focus on specific scientific topics or highlight new discoveries. These exhibitions provide a platform for sharing current research and engaging the public in the excitement of scientific exploration.

The museum’s educational programs are designed to inspire curiosity and foster a deeper understanding of the natural world. Workshops, lectures, and guided tours are offered to visitors of all ages, including families and school groups. These programs are led by knowledgeable staff members who are dedicated to making science accessible and enjoyable to everyone.

The museum is open to the public every day, with extended hours during the academic year. Admission is free, and there are no limits on the number of visitors. Visitors can also join the museum’s membership program to receive exclusive benefits and support ongoing educational initiatives.

The Museum of Natural History is a vital resource for the University of Iowa community and the wider region, offering a space for learning, discovery, and appreciation of the natural world.
To meet the needs of the general public and the various natural science departments of the University, the Museum of Natural History provides a research and the proper care for specimens that come to the University either through gifts or through the efforts of its own collectors. Primarily collecting emphasis is on Iowa and the Midwest region. These collections, representation of the disciplines of biology, geology, and anthropology, now total in excess of one million specimens and are actively used for research and teaching by University faculty and students as well as for public exhibition.

The Museum of Natural History, a department of the College of Liberal Arts, also supports the research studies program in the United States. With exhibits opened continuously since 1965, instruction is provided in the history, philosophy, and management of museums as well as exhibition design and techniques. The museum's 3,000-square-foot Iowa Hall gallery was opened in May, 1967. A series of 10 multimedia exhibits listed by space, theme, and time illustrate Iowa's natural heritage—its geology, native culture, and ecology. Exhibit highlights of Iowa Hall include the Marquette-Justain diorama, Devoisie reef, Mesopotamian, and a life-sized reconstruction of an Ice Age giant ground sloth.

In Bird Hall, the Layman island cricketers is a large and well-known bird habitat exhibit comprising a complete representation of a bird island of the Hawaiian group. Other hall exhibits include the Iowa herpetology exhibit, Louisianaw, Fall Migration, and Cranes. The South Dakota Prairie, the crane exhibit includes both the sandhill crane and whooping crane because of their appearance on the prairie during migration. Museum habitat exhibits of North American wildlife include the prairie and the prairie landscape, moose, and bear. The major components of these exhibits are represented in several habitats and include familiar groups such as birds and mammals, insects, amphibians, reptiles, crustaceans, and sea slugs, and corals. Ethnological exhibits in the museum present artifacts utilized by people of the world, Indian and Eskimo materials, including beadwork and carved ivory received in the last nineteen years, are exhibited. The accuracy of building through 12 million years of time is portrayed in a display featuring replicas of fossil insects from Africa, Asia, and Europe.

The Museum of Natural History also supports educational programming to area schools and sponsors a weekend lecture and field trip series for the general public.

Old Capitol

Old Capitol is the central landmark of the University. It was the capitol of the Territory of Iowa from 1842 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 throughout the years, and it housed the Office of the University President continuously from 1860 to 1970. When the president's office was relocated to its present location on the University of Iowa campus, Old Capitol had become the historic site. Most of the rooms were restored to 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.

Other Resources

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, its 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; conducts 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 general interest publications, answer questions for Information and assist writers, photographers, and broadcasters who visit the campus.

OPUR publishes the quarterly University Calendar of Events, Parent Times for students' parents; the biweekly newsletter for faculty and staff; Ambrosia, 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 tours and other services for University visitors and guests. In addition, OPUR has management responsibility for the Department of Publications.

Publications

The Department of Publications offers services in aspect pricing and publications need of the University. It provides planning, editing, design, and printing of publications. Copy centers located around the campus print quickly, inexpensively and 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 provisions for obtaining competitive bids on purchasing printed outside the University.

The University of Iowa Alumni Association

The principal agency through which Iowa students continue their identification with the University after they leave the campus is the University of Iowa Alumni Association. Organized in 1897, its current membership includes University graduates and former students throughout the world. Its continuing objectives are to maintain ties between alumni and the University; to implement programs of service to alumni; to strengthen public recognition of the University as a model educational institution vital to the stability and welfare of the state and the nation; and to encourage alumni "boots, to serve the University in strengthening its programs of teaching, research, and public service. The association publishes The Iowa Alumni Review, a frequency 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 trusts subject to the conditions imposed on them; and to handle, 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 more funds for student financial aid, faculty development, research, library acquisitions, and programs and projects throughout the University.
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 Evaluation and Examination Service manages placement and remediation 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 Examination (GRE) Aptitude Test, Graduate Management Admission Test (GMAT), Law School Admission 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, questionaire design, and student profiles; and provides consultation on questionnaire development and use.
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Dean: Gerhard Lovenborg
Associate dean of academic programs: James A. Lindberg
Associate dean of development and research: George D. Cise
Assistant dean of faculty: Julia N. Davis
Assistant dean of academic programs: Miriam Gerlach
Director of honors: Irwin 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 provide 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 knowledge it imparts, but it is not superficial. The College of Liberal Arts offers 58 specific degree programs, each requiring extensive study in a particular academic discipline or in a set of related disciplines. The 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 in 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 nature and society, and a phenomenon is to have heightened our aesthetic sensibilities. The complexity of the modern world is matched by our increased ability to understand it. This understanding, however, depends more than ever on general knowledge. It is the mission of the College of Liberal Arts to make this 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 raise significant questions, to find answers, to reject dogmatics, to be free of superstition, and to adapt to change.

College Organization

The internal organization of the College of Liberal Arts reflects its multifaceted character. The college is composed of units of various names: divisions, schools, departments, programs, and subdepartmental units. There are two divisions in the college, the Division of Fine Arts consisting of the School of Art and 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 the School of Music, there are schools of Journalism and Mass Communication, Letters, Library and Information Sciences, Religion, and Social Work. These latter normally organized departments and programs provide instruction on the college and the other majors leading to one or more degrees, minors, or certification 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 Schaefer 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 should visit the Office of Academic Programs to obtain information about graduation requirements, including the General Education Requirements; the Bachelor of General Studies (B.G.S.) and other degree programs; minors offered in these programs; the College-Level Examination Program (CLEP) and the Advanced Placement Program (AP); auditing courses; pass-fail and satisfactory-failing grading; and the second-grades-only option.

Students also should visit the Office of Academic Programs to declare or to change majors, to file the second-grades-only options, 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 advises appeals brought by students concerning academic matters or refuses to sign to the student appeals committee. Working closely with the committee on student disciplinary action, 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:

- Actuarial science—B.S.
- American studies—B.A.
- Ancient civilization—B.A.
- Anthropology—B.A.
- Art—B.A., B.F.A.
- Asian languages and literature—B.A.
- Asian studies—B.A.
- Astronomy—B.A., B.S.
- Biochemistry—B.S.
- Biology—B.A., B.S.
- Botany—B.A., B.S.
- Chemistry—B.A., B.S.
- Classics—B.A.
- Communication studies—B.A.
- Comparative literature—B.A.
- 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 sciences—B.S.
- French—B.A., B.S.
- Geology—B.E., B.S.
- German—B.A.
Majors in Education and the Teacher Education Programs

Students may indicate 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 education). 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 is offered in the Department of Communication Studies, and apparel and textile merchandising and design is 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 specialization 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 advised 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), Asian-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 minor 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, including 6 or more semester hours of independent studies honors registration, and leads to the degree "with interdepartmental 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 interdepartmental honors in the following areas: correctional education, global studies, humanities, international affairs, international studies, literature, history, and philosophy, media studies, and methodological social sciences.

Early Admission to Medicine or Dentistry

Students who are working toward a baccalaureate degree from the College of Liberal Arts may accept early admission 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 a baccalaureate degree from the College of Liberal Arts after early admission to The University of Iowa College of Medicine or College of Dentistry. Prior to entering in the professional college, a student must have earned at least 90 semester hours, fulfilled all 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 a student 20 semester hours of ungraded elective credit that may be applied toward his 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 school of 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 record the baccalaureate degree. A student must meet the requirements given above to enroll in a professional college of 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 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 who enter this program will be advised by the assistant dean of the College of Engineering and by an associate dean of 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. 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 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 social, 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 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. degrees will be considered to have satisfied all the college requirements for graduation except the foreign language requirement. The foreign language requirement for both degree must meet college course requirements.

Students with B.A. or B.S. degrees 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 not indicated on the student's admission 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.D. degrees must satisfy the college's overall requirements for graduation by earning a minimum grade-point average of C (2.0) in all college work attempted, all work attempted at The University of Iowa, and all work attempted in the major field, included 2.6 in all University of Iowa major work.

B.G.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 attempted at The University of Iowa, and all advanced coursework attempted.

Residence

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

Two or more bachelor's degrees in residence, or

A total of at least 60 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 entered 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 entered at The University of Iowa for the first time after July 1980 must complete the following General Education Requirements for the B.G.S. degree.

Refer to: one or two courses (4.0 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 of a foreign language (8.0 s.h.); for the B.A., 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 (3.0 s.h.);
Historical Perspectives: two approved courses (6 s.h.).
Humanities: 801. The Interpretation of Literature and two approved courses (9 s.h.)

Natural Sciences: two approved courses, one of which must be a laboratory component (1 s.h.)

Quantitative or Formal Reasoning: one approved course (4-4 s.h.)

Social Sciences: two approved courses (9 s.h.)

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 1986 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 Unified Program

The Unified Program (UP) is a four-year sequence of integrated general education courses for a small 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 at 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 the following ways:

By passing 101 and 102 Rhetoric for 8 semester hours.

By passing 103 Rhetoric for 4 semester hours.

By passing the speech test and 104 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 for 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. This requirement should be met by the end of the student's first year in residence or during the first 30 semester hours 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.

Satisfactory 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.)

Course 999 at The University of Iowa

Successful completion of the required mathematics course(s) at The University of Iowa satisfies the mathematics requirement. These courses include:

22M.1 Basic Algebra I 3 s.h.
22M.2 Basic Algebra II 3 s.h.
22M.3 Basic Geometry 3 s.h.

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 counted 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; credit will not count toward graduation.

Fall 1997: 22M.2, 22M.3; credit will not count toward graduation.

Students will be required to complete one, two, or three courses, depending upon their high school mathematics background and scores on the MPT.

The 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 1986;
Courses equivalent to 22M.2 taken after summer 1986;
Courses equivalent to 22M.3 taken after summer 1986.

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

Physical Education

All students must complete four one-semester courses in physical education skills under the satisfactory/unsatisfactory grading procedure.

NOTE: Because of extensive remodeling of the Field House, the physical education skills requirement was temporarily reduced from six to three semester hours. The reduction applies to all new freshmen and transfer students admitted for summer session 1983, first and second semester 1983-84, summer session 1984, and first semester 1984-85.

Only courses 1041 and 942, 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 incomplete or using the second-grade-only option, the student must complete or retake the same activity or repeat the same level.

Proficiency Examinations

Up to 4 semester hours of ungraded 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 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 core work (activities, sports, and athletics), 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 a college of their choice to complete the equivalent to a degree.

Oder Students

Students who have passed their twenty-third birthday prior to the date of enrollment at the University, as well as those who have passed their twenty-eighth birthday prior to the day of their graduation, are excluded from the physical education requirement.

Veterans

Veterans may be exempted from this requirement by presenting to the registrar certificates of having completed a basic training course in the 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 sequential, semester-long years of the same language in college, or the equivalent, meets the B.A. degree requirement. The completion of two sequential, semester-long years of 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. degree.

Combinations of High School and College Courses in the Same Foreign Language

One year of high school study in a foreign language is equivalent to 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. degree.

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.) Students who are proficient in a foreign language usually pass at least one of the exams at the University of Iowa also may validate their proficiency.

Sequences of Courses that Satisfy the Foreign Language Requirement

B.A. Degree

Chinese-- 39:8 - 39:9
Dutch, 130:11 - 130:12 - 130:21 - 130:22
French, 91:1 - 92:9 or 91:10, plus 91:1 - 91:2
or 516:0 - 516:2 or 516:10 - 516:20 - 516:10 -
916:10
German, 123:1 - 123:12 - 133:12 - 134:14,
plus 131:2 - 131:22 or 131:22 - 131:22 -
131:22
Greek, 141:1 - 141:11 - 141:12
Italian, 181:1 - 181:2 - 181:11 - 181:12 -
181:10 - 181:10 - 181:11 - 181:12
Japanese, 39:3 - 39:9
Latin, 201:1 - 201:2 - 201:19 - 201:15 -
201:16 - 201:17 - 201:14 - 201:16 - 201:17
Portuguese, 381:1 - 381:1 - 381:17 - 381:17 -
381:10 - 381:10 - 381:12
Russian, 41:1 - 41:2 - 41:3 - 41:4
Spanish, 381:1 - 381:25 or 381:30; plus 381:31 -
381:12 or 381:15
B.S., B.F.A., B.G.S., B.M. Degrees

Chinese, 39:3 - 39:9 or 38:8
Dutch, 130:11 - 130:12
French, 91:1 - 92:9 or 91:10
German, 131:1 - 131:12 or 131:13 or 131:14 -
131:25
Greek, 141:1 - 141:2
Hindi, 39:3 - 39:32
Italian, 181:1 - 181:2 or 181:14
Japanese, 39:3 - 39:32 or 39:34
Latin, 201:1 - 201:2 or 201:15 or 201:17
Portuguese, 381:1 - 381:1 or 381:17 or 381:10 -
381:10 or 381:12
Russian, 41:1 - 41:2 or 41:5 - 41:10
Sanskrit, 39:21 - 39:22
Spanish, 39:3 - 39:32 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.

H5 Western Art and Culture

Before 1499

3 s.h.

1495 Western Art and Culture After

3 s.h.

1415 Islamic Art and Civilization

3 s.h.

1815 Introduction to Asian Art

3 s.h.

73104 Education, Politics, and Culture of Modern South Western Asia

3 s.h.

9314 Literature of the African Peoples

3 s.h.

9417 French Literature and Culture

3 s.h.

1317 German Heroic and Erotic Literature of the Middle Ages

3 s.h.

13101 Introduction to Medieval German Literature I

3 s.h.

13102 Introduction to Modern German Literature I

3 s.h.

39:10 German Cultural History

3 s.h.
General Education Restrictions and Waivers

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

No More Than Three Credits 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, 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 to students at the college may lead to full or partial exemption from the mathematics, foreign language, or general education requirements (if they are not awarded). Exemption and up to 4 semester hours of General Education requirements are awarded for satisfactory performance on comprehensive tests in physical education skills. Exemption and/or academic credit may be awarded for satisfactory scores on examinations administered by the College Examination Program (CEP) 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 Service.

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 assess 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-nonpass. Courses required for the major in cognate or related areas may be taken pass-nonpass, 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 Spanish and portuguese), students may earn a double major, a major and a minor, or two minors (involving these degree programs. All students must earn a minimum of 56 semester hours in courses taken outside their 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 at least 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 or 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 12 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-nonpass.
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, Latin 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 programs are 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 an interdepartmental program—such as ancient civilization or literature, science, and the arts—may not earn a minor in a field 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 listed below will satisfy all requirements for the minor.

A computer programming course 3 s.h.
Business Calculus (22M 17, 22M 25, or 22M 35) 3 s.h.
Statistics (225 or 225 125) 3 s.h.
601 Principles of Microeconomics 3 s.h.
602 Principles of Macroeconomics 3 s.h.
651 Introduction to Financial Accounting 3 s.h.
667 Management Cost Accounting 3 s.h.
8510 100 Introduction to Marketing 3 s.h.
8550 Introductory Financial Management 3 s.h.
5110 Administrative Management 3 s.h.
4L51 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 be registered for the first seven courses listed above, and apply for admission to the business minor program. The last seven courses may be used as elective credit or used to satisfy 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 in 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 medical 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 are typically 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 40 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 courses offered by the College of Education are exempt from this rule.

At other College of Liberal Arts policies regarding total earned hours, residence, pass/fail options, 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.

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

Students completing a B.G.S degree may earn no more than 30 semester hours of 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 exempt from this rule.

All other College of Liberal Arts policies regarding total earned hours, residence, pass/fail options, 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 46 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 Regent 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 as 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 Regent universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper Extension Education Program courses; extension courses, including those with distance-learning formats; and regular on-campus courses. Students also may 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 2.0 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-division (in the College of Liberal Arts, courses numbered 100 and above); 60 must be composed in courses offered by the Iowa Regent universities, and 30 must be earned after admission to the B.L.S. program in the specific Regents university that will award 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 for 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

Communication 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 12 semester hours of upper-level credit in at least two of the above categories. Credits 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 college 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. The Schedule of Courses for current listings.

Maximum Schedule
The typical schedule is 15-16 semester hours in a regular semester, 40 semester hours in a summer session. The maximum permitted registration is 20 semester hours in a regular semester, 12 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 after 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 session 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 covered in the Schedule of Courses, may be added with the necessary signatures at any time during the first 1/5 of the duration of the course and dropped at any time during the first 1/5 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 (Withdrawal) mark in the Course 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-fifth 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 overcrowding 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 drop 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 advisor, 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/fail registration or audit registration (zero credit) may be made only during the first one-fifth of the duration of the course (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 is delivered to the Registration Center.

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

Withdrawal from Registration
Students may withdraw without academic penalty at any time prior to the end of the twelfth week of the semester or sixth week of the summer session. A mark of F is assigned 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 reinstated 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 semester in which the degree is to be conferred. Students who want 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 average, hours in residence, and courses completed to satisfy the General Education Requirements and requirements in the major.

The analysis may be renewed 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 restricted by 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.

Recession
Recession 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 recession has occurred. Hours earned by recession do not count toward the total number of hours needed for graduation.

Grading Procedures

Marking System
The following marking system is used in the calculation of grades:

Grade Grade point for each s.h.
A+ Superior 4
A+ Above Average 3
A- Average 2
B+ Below Average 1
F- Failure 0
I- Incomplete 0
W- Withdrawn 0
N- No Pass 0
R- Registered 0

Not used in computing GPA
Not used in computing GPA
Not used in computing GPA
Not used in computing GPA
Not used in computing GPA
Not used in computing GPA
Not used in computing GPA

Computations

GPA = \[ \frac{A \times 4 + A- \times 3 + A- \times 2 + B+ \times 1 + F- \times 0 + I- \times 0 + W \times 0 + N \times 0 + R \times 0}{A + A- + A- + B+ + F- + I- + W + N + R} \]
Satisfactory-Fail
Qualifying courses in the College of Liberal Arts are offered on a satisfactory-fail basis.  Credit and grade of S or F will be used.  The student who does not meet requirements or who fails in a satisfactory manner will receive a grade of F.  Credit will not be used in computing the grade-point average, but the grade of F will be used.  The grade of P does not count as semester hours earned for graduation.

Auditing Courses
Students in the College of Liberal Arts may register as auditors if approval is granted by the adviser and the course instructor.  In addition to obtaining the signatures of the adviser and instructor, students must register for zero credit in the course to be audited.  The mark of R (registered) will be assigned if the student's attendance and performance are satisfactory.  If, however, the instructor finds that attendance and performance are unsatisfactory, the mark of W (withdrawn) will be assigned.  Credit earned only for zero credit will be graded R-W.  Courses completed with a mark of W will not meet any college requirements and will carry no credit toward graduation.  Auditing may not be used as a second-semester-only option.

Second-Grade-Only Option

In excess of rigorous schedule, students may take courses set as the University of Iowa and have only the grade and credit of the second requirement in calculating total hours earned as well as University of Iowa cumulative and total grade-point average.  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 one will be used in computing the grade-point average 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 form.  Unless the student is granted an extension, credit for the second attempt will not be used in the grade-point average.

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

The provisions of this policy are applied to a maximum 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-fail the first time, it may be taken pass-fail or for credit for 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

A grade of I may be reported only if the unfulfilled part of the student's work (other than in research, thesis, or independent study) is small.  The work is unfinished for reasons acceptable to the instructor, and the student's standing in the course is satisfactory.  Courses may be repeated to remove incompletes.  Complete grades must be reported to the office of the dean of the college after the incompletes have been removed by completing the unfinished part of the work.

Failure to remove the incomplete during the next session for which the student is enrolled, may result in the student being assigned to the incomplete for the remainder of the session.  The student who is assigned to the incomplete will be assigned an F.  All special reports to the registrar removing incompletes must reach the registrar at or before the deadline for submitting final grades for the next session in the term 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

The 0 (zero) designation appearing on a student's permanent record must be changed to a valid grade according to the same rules that apply to incompletes.  Failure to remove the 0 by the specified deadline results in the assignment of an F.

Midsemester Reports

At the end of the midsemester, report grades for all students whose work is below C.  These reports are distributed to advisers.
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 measurable progress toward a degree. Probation serves as a warning that students will not graduate unless 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 (0-24 semester hours): 1.60
- Sophomores (25-55 semester hours): 1.75
- Juniors (56-89 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/F) 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 fail 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, Liberal Arts Office of Academic Programs, 166 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 dismissed 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 to 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, 10% or more of the classes missed, the instructor may give a written statement to the Liberal Arts Office of Academic Programs for investigation and action.

For permission 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 excused absences 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 advised.

Commencement Attendance
Attendance at Undergraduate commencements is optional. Candidates 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 examinations, please see the College's Classroom Manual.

Student Conduct
Any offense against good order committed by a student in a classroom or on 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 the facts necessary. 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 grade, including the assignment of the grade of F in the course. A written report of this action should always be made.

LIBERAL ARTS
to the Liberal Arts Office of Academic Programs.

The associate dean of academic programs, or the committee on student academic conduct, will determine the duration and, 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 O 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 extracurricular opportunities to outstanding students. Freshmen and sophomores may take advantage of special honors sections that are offered in some general education courses. At the junior and senior level, most departments offer honors seminars, independent research, and the opportunity to present a thesis or a senior honors project to a baccalaureate degree "with honors" in the major (see "Graduation Honors" below).

The Stambaugh 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, Stambaugh House Honors Center.

Graduation Honors
High scholastic achievement is recognized upon graduation with distinction based upon grades only; and participation in high honors in a particular field, based on both grades and the cumulative grade-point average maintained 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 in the College of Liberal Arts 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.

Admission Requirements
To qualify for admission to the College of Liberal Arts, applicants must meet the following admission requirements and any special requirements for the programs of their choice.

The University of Iowa requires all freshmen and undergraduate transfer students to complete the American College Test (ACT) 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 provisionally 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.

Graduates of approved Iowa high schools who are in the upper one-half of their graduating class and meet specific curricular requirements are generally admitted without certification of graduation. Applicants who are not in the upper one-half of their graduating class may be required to take special examinations and, after a review of their records and after the joint action of the admission officer, may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission. An ACT score of 24 is required for automatic admission of all Iowa resident high school graduates who are in the top half of their graduating class.

Admission of nonresident graduates in other states are expected to meet higher standards than the minimum requirements for graduates of 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 ACT scores of 25 or above for automatic admission.

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

Applicants who are not high school graduates 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 and 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 are 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 on 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 without 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 evaluated 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 reasons 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 pass 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 the student's time of the validation process at the time of provisional admission. Students from nonaccredited colleges are considered on the basis of an examination pursuant to policy. An admission to, 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, may be admitted to meet higher standards for admission (as are nonresidents U.S. students) than the minimum requirements outlined for a resident of the state of Iowa or a graduate of an Iowa high school.

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 use 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 proficient in English and are not subject to any additional English language requirements. Applicants with TOEFL scores below 550 are required to take an 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 (EFL) courses recommended as a result of the linguistics department's proficiency examination.

Foreign undergraduate students are subject to the same rhetoric 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 Comprehensive Articulation Agreement, foreign undergraduates whose TOEFL scores are above 550 must enroll in rhetoric.

Like foreign applicants, permanent resident (immigrant) aliens and 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 new or 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. Counsel 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 admissions 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 of between such recommendations and the standards of the College of Liberal Arts will be referred to the Liberal Arts Office of Academic Programs. The College of Liberal Arts will use an evaluation of the Armed Forces Institute of Research correspondence courses may be accepted for credit under 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.

Placement and Exemption Examinations for General Education

Full or partial exemption from the requirements in rhetoric, mathematics, physical education, or foreign language may be awarded for satisfactory performance on tests 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 (AP) 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 in the undergraduate 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 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 IS semester hours of advanced courses required for the minor.

Advanced Placement Program (AP)

Students who pursue college-level learning while still in high school may take the AP testing program 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 evaluated to determine how many college-level credits or advanced placement is warranted. Credit awarded through AP may be applied to the General Education Requirements, to requirements in the major or minor, or to elective credits.

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 earn college-level credit that may substitute for the college-level course and competency they may have achieved outside of normal college institutional programs. General examinations cover broad content areas such as the humanities, natural science, and social science 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 a 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 Services. Students who wish to participate in CLEP are encouraged to do so.
Four-Year Program

The four-year program consists of the General Military Course (GMC) and the Professional Officer Course (POC). Students not a Reserve Officer Training Corps student are required to take the four-year program. The GMC consists of a professional, military, science, and leadership component. The POC consists of military, science, and leadership component.

Aerospace Military Studies

Advanced, Col. James P. Whitfield
Instructor, Lt. Col. Patrick G. Warner
Coordinator, Capt. Thomas Bantle, Capt. Artur Belcar,
Capt. M. H. Kinsey

The Department of Aerospace Military Studies administers the Air Force Reserve Officers Training Corps (AFROTC) at the University of Iowa. The mission of AFROTC is to recruit, educate, and commission 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 must also satisfy a requirement for an English composition course and for two semesters of a major in Russian or Asian language. The College of Liberal Arts General Education Requirements must satisfy these requirements.

Three-Year Program

The three-year program is the same as the four-year program, except that the GMC is taken in one year. Sophomores take the freshman and sophomore sequence simultaneously. This results in two semester hours of AFROTC plus two leadership laboratories per semester.

Two-Year Program

The two-year program consists of field training and the Professional Officer Course (POC). Entry into the two-year program is competitive, and students must have at least two academic years of either undergraduate or graduate work remaining in college.

The POC consists of four three-credit AFROTC courses and 220-969, Leadership Laboratory. Juniors take 220-1161, Leadership Laboratory and seniors take 220-1162, 1163, and 1164, National Security Forces in the United States, 1165. Students who want to enter the two-year program should contact the professor of aerospace studies by January before the fall semester of their junior year. Applicants are evaluated on the basis of college major, grades, ACT/SAT scores, the Air Force Officer Qualifying Test (AFQT), an air force medical exam, a personal interview by a board of U.S. Air Force officers, and the recommendations of the professor of aerospace studies. Students must accept the POC make a commitment to serve a minimum of four years as a U.S. Air Force officer.

Leadership Laboratory

Leadership Laboratory is a cadet-centered activity. It is largely cadet-planned and is directed toward promoting leadership training experience that will improve a cadet's ability to perform as a U.S. Air Force officer. Freshmen and sophomores
Field Training

All PVC applicants must successfully complete field training at a U.S. Air Force base during a summer, normally between the sophomore and junior years. There are two types of field training: a four-week course for cadets in the four-year and three-year programs and a six-week course for two-year program applicants.

Field training consists of aircraft, aircrew, career, and survival orientation, junior officer training, physical training, small arm training, human relations education, and equal opportunity training. The six-week field training provides 60 hours of academics that a student normally would have taken as a freshman and sophomore. Students receive authorized pay and allowances when they attend field training.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, a formal dinner, the Military Ball, and an awards ceremony.

Cadets can join the Arnold Air Society, a business-orientation aerospace society dedicated to developing leadership qualities and to serving the community.

The Advanced Training Program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their junior year. Cadets get "hands-on" experience in the military and receive additional pay and allowances.

Selected APROTC cadets may attend airborne training and upon completion wear the army parachute "jump wings."

Educational Delay

Cadets may request an educational delay to postpone entry to active duty until after completion of an advanced degree or professional training program.

Courses

22A: The Air Force Today
Introduction to the U.S. Air Force, including security, separation, and military base operations. Freshman fall semester.

22A: The Air Force Today II
Introduction to the U.S. Air Force, including security, separation, and military base operations. Freshman fall semester.

23A: The Development of Air Power

23B: The Development of Air Power II

32B: Basic Flight Ground School
A one-week course in flight planning and ground school, including study of aircraft systems, aerodynamics, flight planning, weather analysis, navigation, weather, flight safety, and other topics. Offered in selected years.

32C: Field Training
Continued training in flight planning and ground school. Offered in selected years.

32B: Leadership Laboratory
Continued training in flight planning and ground school. Offered in selected years.

32B: National Security Seminar
Continued training in flight planning and ground school. Offered in selected years.

32C: Management and Leadership
Continued training in flight planning and ground school. Offered in selected years.

32D: Leadership Laboratory
Continued training in flight planning and ground school. Offered in selected years.

32D: Readiness to Contingency
Continued training in flight planning and ground school. Offered in selected years.

Financial Assistance

APROTIC scholarships are available for four, three and one-half, three, two and one-half, and two years. In addition, three- and two-year pre-professional and nursing scholarships are offered. All scholarships are based on merit and provide full tuition, a stipend for books, laboratory fees, and $100 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the professor of aerospace studies.

All cadets in the last two years of APROTC receive $100 per month, tax-free. APROTC books and uniforms are furnished.
Undergraduate Program

Although the African-American World Studies Program does not offer an undergraduate major leading to a degree in African-American Studies, students interested in the field may concentrate on African-American studies in a program leading to the B.A. degree in American studies. Such a concentration includes 129 credits in African-American, African, and Afro-American history and literature. The minimum number of credits required for this major is 120.00. Concentrations in African-American studies are available in the following fields: African-American History, African-American Literature, and African-American Culture.

Minor

The African-American World Studies Program offers a minor in African-American Studies for students in other majors. 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 those courses must be numbered 120-160; the remaining courses may be from the list of African-American World Studies courses. The minimum number of credits required for this minor is 120.00.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts degree in African-American Studies provides an intensive, organized, graduate-level examination of African-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 African-Americans may be necessary.

Curriculum Requirements

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

Comprehensive Examinations

Each student is required to write a comprehensive examination in African-American Studies. The 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 African-American Studies. If a student elects to write a thesis, the thesis must explore a topic of African-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 African-American culture and/or experience. When completed, this project must be presented and defended before an appropriate class in African-American studies. Credit for the thesis or project usually is earned through registration in 120.312 Advanced Research in African-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 appropriate educational background, prominent professional qualifications, and at least 6 semester hours of graduate work in an area of study related to African-American studies. A student may be admitted to the program without an undergraduate degree in African-American Studies. Credit for the thesis or project usually is earned through registration in 120.312 Advanced Research in African-American Culture.

Concentration within M.A. Program in African Studies

A student concentrating in African-American Studies within a Master of Arts program in African-American Studies is expected to complete a comprehensive examination, a thesis, or a project that further develops the student’s understanding of African-American studies. The student is expected to complete a comprehensive examination, a thesis, or a project that further develops the student’s understanding of African-American studies.
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 1660-1830, 129:116 Afro-American History 1794-1914, 129:118 Afro-American History 1914-Present—except when they take 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 research scholar at the college or university level. Of the minimum 72 profit-reimburseable semester hours required for the degree, at least 36 semester hours (not including the thesis) must be in courses in Afro-American studies, including 120:211 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 1660-1830, 129:116 Afro-American History 1724-1830, 129:118 Afro-American History 1914-Present—except when the student has completed equivalent 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 Ph.D. program spans research from more than one field, while focusing on an aspect of Afro-American culture and experience. Additional requirements are described in "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. It is recommended that the student 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 corners 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 1978, The University of Iowa served as summer host for an Institute in Afro-American World Studies for college and university teachers. The institute, which brought renowned artists and scholars to Iowa City, featured courses on 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 entitled to be official members of the Institute, they are permitted to enroll in a 3-semester-hour course offered at the white college as the Institute class and on the current year's topic. The program plans to offer institutes in future years.

Black Action Theater

Appropriately sponsored through the African-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 resource and information center for educational and cultural activities and exhibits of Black culture, providing cultural enrichment for Black people of the Iowa City community and for college students. The center also promotes and provides a forum for cultural and artistic events. The center is open to the public at no charge.

Black Genesis Troupe

The African-American World Studies Program also encourages participation in Black Genesis Troupe, 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 Afro-American Studies Graduate Student Association attempts to promote interest in Black culture by orienting 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. For course descriptions, see the appropriate sections of the Catalog.

Business Administration

6:52 Collective Bargaining 3 s.h.

Economics

6:137 Problems in Urban Economics 3 s.h.

Education

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

7:120 Educational Sociology 2 s.h.

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

7:115 Socialization of the School-Age Child 3 s.h.

7:133 The Culturally Interested in Educational Setting 3 s.h.

History

16:615 America and the World, 1492-1877 3 s.h.

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

16:177 American Intellectual History to 1877 3 s.h.

16:178 American Intellectual History from 1877 3 s.h.

16:183 United States in the Early Republic 3 s.h.

16:184 Civil War and Reconstruction 3 s.h.

16:185 The Global Age in America 3 s.h.

16:186 America in America 3 s.h.

16:187 The New Era and The New Deal 1920-1940 3 s.h.

16:188 The Contemporary United States 1940-Present 3 s.h.

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

Courses

African-American World Studies and Related Areas

For Undergraduates

13998 Literature of the African Peoples 3 s.h.

Introduction to selected works of music, theatre, and current and critical issues in the literature of Sub-Saharan Africa, the Caribbean, and Africa in the Diaspora.

13999 Black Poetry Workshop 3 s.h.

Focus on the current poetry of Black artists, especially those in the Diaspora, and on critical issues in the teaching of poetry. Includes oral presentations, discussions, and critiques of poems presented by students in the course.

15911 Contemporary Black Literature 3 s.h.

Focus on the literature of contemporary Black writers, and an emphasis on contemporary African literature.

15912 Readings in the Power of Black Women 3 s.h.

Critical discussion of Afro-American women's power as a source of strength and empowerment for women of African descent. Includes oral presentations, discussions, and critiques of poems presented by students in the course.

15913 Visual World Languages in Literature 3 s.h.

A study of selected works by Black writers of the 19th century, focusing on the representation of African culture and Black identity in the works. Includes oral presentations, discussions, and critiques of poems presented by students in the course.

12998 Introduction to Afro-American Society 3 s.h.

Focus on the social, political, and historical development of the African-American experience. Includes oral presentations, discussions, and critiques of poems presented by students in the course.

15914 The Art of African Architecture 3 s.h.

The role of architecture in the African culture and society, with emphasis on traditional and contemporary African architecture. Includes oral presentations, discussions, and critiques of poems presented by students in the course.

15915 Visual World Languages in Literature 3 s.h.

A study of selected works by Black writers of the 19th century, focusing on the representation of African culture and Black identity in the works. Includes oral presentations, discussions, and critiques of poems presented by students in the course.

16999 The Art of African Architecture 3 s.h.

The role of architecture in the African culture and society, with emphasis on traditional and contemporary African architecture. Includes oral presentations, discussions, and critiques of poems presented by students in the course.
Aging Studies Program/LIBERAL ARTS

Several established programs and resources at the University of Iowa benefit the African Studies Program. The Stanley Collection of African sculpture 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 at strengths the African Studies Program, as does the exchange between The University of Iowa and the University of Ouaçãopolo, 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 curriculum for 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 7-10 courses. Certificate work is an introduction to the continent, its history, art, literature, politics, and peace and an introduction to the African faculty at Iowa. This is followed by 15-20 semester hours of intermediate (100-level) lecture courses, with at least one course from each of the four areas of study: literature, art, history, and social sciences. More study could complete the study of the four areas of study and an advanced course or seminar.

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 or the equivalent of a foreign language spoken in Africa. Language currently taught at The University of Iowa that meet this requirement are French, Portuguese, and Spanish.

Introductory Course

401 5: Contemporary Africa 3 s.h.

Intermediate Courses

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

Literature

80:149/258 Literature of the African Peoples 3 s.h.

105:150 African Drama 3 s.h.

125:116/116 African Literature 3 s.h.

125/125/1616 Modern African Novel 3 s.h.

91:317/211:211 African Literature: Literature of the African Diaspora 3 s.h.

Art

161:107/107 Art of West Africa 3 s.h.

161:128/110 Art of Central Africa 3 s.h.

161:190 Themes in Art History: African Crafts 3 s.h.

25:202 Seminar: Problems in African Art 3 s.h.

History

125:160 History of Pre-Colonial Africa 3 s.h.

161:125/125 History of Colonial Africa 3 s.h.

161:125/125 Modern African History 3 s.h.

Social Sciences

30:146/146 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.

Advanced Course/Seminar

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

141:202 Seminar: Problems in African Art 3 s.h.

129:227/227 Three African Writers 3 s.h.

44:301 (Sec. 222) Upstream Food Crisis 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 AI 52242.

Aging Studies Program

Coordinator: Norma Megargee
Advisory committee chair: Nalladon Pope (Sociology)
Advisory committee: Lynne Dornbus (Health Economics); Samuel Kat (Law); Dennis Heing (Pharmacology); Albert W. Wood (Community Education); Bernan Heimniz (Recreation Education); Juan F. Melendez (Graduate College); James B. Loeb (Liberal Arts); George Lopes (Continued Education); Eleanor McClusky (Nursing); Woodrow W. Morris (Medicine); Paul paperwork (Psychology); Robert S. Schuklinsky (Business Administration); Kay Tansey (Director, School of Social Work, Gerontology Program); Thomas H. Vail (Social Worker); Dennis Dornbus (Dance Work); Executive committee: Lynne Dornbus, Dennis Dornbus, Albert B. Holt, Nalladon Pope, Harpoon McCleary (as office). Committee members: Benjamin H.Burnett, Eleanor McClusky, Nalladon Pope, Butler. Committee members: Albert B. Holt, Nalladon Pope, Martin McCleary (as office). The Aging Studies Program aims to provide undergraduate and graduate students with an interdisciplinary approach to gerontology. The program consists of courses that have been coordinated and sequenced to provide a broad background in aging and its relevance to various disciplines. All students plan their course of study with the academic advisor in close cooperation with the Aging Studies Program coordinator.

Program Requirements

The Aging Studies Program includes 18 approved semester hours of course work related to aging at the 100 level or above. This aging-specific course work is defined as courses within the University that are focused principally in older persons, the aging process, or interventive methods 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 program of study. Six semester hours must be taken outside the student's major department.

Students should take the inter-disciplinary aging course prior to or concurrently with other courses in the program. The research project or the practicum course should not be taken for more than 6 semester hours of the program are completed.

Program Eligibility

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

Students in good standing at the aforementioned levels may establish plans of study with the Aging Studies Program coordinator, who will work with the student and the student's adviser to develop 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 comprehensive plan of the sequence of coursework to be taken. The coordinator will arrange a second of the student's approved program and his or her progress. Upon completion of the program, the coordinator notifies the Registrar, 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 of department. At least 12 of the 15 semester hours must be taken in advanced courses (junior 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:

17:108 Basic Aspects of Aging
34:100 Aging and Society
42:184 Multidisciplinary Perspectives on Aging
96:129 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 options include:

17:000 Cooperative Education Internship
17:015 Home Economics Internship
42:189 Selected Aspects of Social Work and Social Welfare-Interdisciplinary Field Work in Gerontology

Other departmental practicum or research courses will be accepted if the content 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 Ageing in America
Anthropology
113:136 Aging: A Cross-Cultural Perspective
Biology
37:271 Seminar in Cell Physiology

Business Administration
68:123 Public Economic Security Programs
72:280 Topical Seminar in Consumer Education
Dentistry
152:145 Introduction to Geriatric Dentistry
Health and Hospital Administration
48:398 Long Term Care Administration
Home Economics
17:211 Individual and Family Development: Life Span (partial credit)
Internal Medicine
38:995 Geriatrics Seminars
Nursing
96:130 Normative and Psychological Aspects of Aging
96:131 Nursing Care of the Institutionalized Gerontological Client
96:291 Biophenotypical Concepts in Human Aging

Physical Education
27:112 Physical Activity and Aging
Recreation Education
104:148 Consumer Issues in Recreation and Leisure
104:152 Aging and Leisure
Religion
32:183 Introduction to Medical Ethics (partial credit)
32:180 Duties and Dying
Sociology
34:136 Social Psychology of Aging
34:230 Sociology of the Family (partial credit)
34:250 Aging and Human Development
Social Work
42:189 Aging and Social Work
42:185 Social Policy and the Elderly
42:202 Social Policy Issues in Health Care (partial credit)
42:390 Human Behavior: Selected Aspects
Speech Pathology
5:350 Seminar on Communication and Aging

American Studies Program
Chase Richard P. Howitz, Professor


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


In its core 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 dynamics of cultural experience. Students may combine related departmental courses in American experience with the interdisciplinary courses and seminars of the American Studies Program to explore aspects of life in the United States such as popular and high culture, institutions, values, social processes, artifacts, and the nature and contributors of subcultures.

Undergraduate Program
Bachelor of Arts
The B.A. degree in American studies stresses broad training in cultural analysis and comparative research rather than specific preprofessional or vocational training. It also provides preparation in areas ranging in business, education, government, journalism, and social welfare, 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, majors in American Studies develop an individual plan of study, choosing courses from cognate departments and programs with Integrative American Studies Program courses to explore a common period, topic, theme, or problem in American cultural experience. The major usually consists of 12 courses, normally totaling 36 semester hours and including four courses (12 semester hours) in American and/or African-American World Studies, two courses (6 semester hours) in American history, and six courses (18 semester hours) in cognate departments and/or American studies. The courses in American and/or African-American World studies usually include:

Required courses:
51: American Values
3: 5E36 Turning Points in American Culture
3: 3:
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.

45.11 Aging in America 3 s.h.

45.12 The Visual Arts and American Culture 3 s.h.

45.13 American Institutions: The Constitution 3 s.h.

45.14 American Communities: The Contract Society 3 s.h.

45.15 Anthropology and American Culture 3 s.h.

45.16 Popular Culture 3 s.h.

120.40 Introduction to Afro-American Studies 3 s.h.

120.60 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. No 25 American Lives is especially recommended.

Honors

Honors candidates in American studies must take 45.99 Turning Points in American Culture and 45.95 Readings in American Studies. With his major advisor's help, the student in 45.95 defines a research project on an American studies topic, does the research, 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, in American studies. At least 12 of the 15 semester hours must be at The University of Iowa in courses numbered 45.100 and above. 45.90 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 preparatory to the Ph.D. in American studies or a traditional discipline. The M.A. program in American studies includes 12 course hours totaling 36 semester hours. Requirements include:

- 2400 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 courses. 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 their advisor 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 cultural context for the study and practice of law. Similar joint programs can be arranged 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 work in tools or skills.

Although permitted considerable flexibility in planning a program, the American studies candidates must meet certain basic requirements. One is that all students directly related to the course work and reading, in the cultural diversity of American life and experience. Some course work is required in areas such as African-American World studies and women's studies, familiarity with race and gender issues will be expected specifically on the candidate's final exam. A second requirement is that each program include a two-and-one-half study of one period of American cultural history as defined by the student's specific interests. Hence, history is considered either background or to the actual content of the cultural 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's program normally takes five, 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 comprehensive position paper or essay, provide the basis of the candidate's 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 the comprehensive examination committee. Candidates who have already submitted an annotated bibliography for a course have the option of replacing the bibliography with a thorough written examination based on an annotated reading list.

The tools and skills area or minor field must include at least two courses or of semester hours of graduate-level work at Iowa in foreign language, film-making, museum work, linguistics, computer science, statistics, etc., in addition, up to 56 semester hours in thesis research and writing, teaching methods, and/or 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 written investigation involves two or more fields or discipline. The candidate may petition to present a creative thesis such as fiction, autobiography, film, with a claim on the cultural influences that affect it, but permission to produce 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, the Iowa Historical Commission, the Division of Historic Preservation. The Graduate School of Iowa Museum of Art, the Iowa Humanities Board, Living History Farm, the Herbert Hoover National Historic Site, and the Powhatan Museum, Davenport. Other internships in Chicago can be negotiated with Hull House, Dewey Library, Church Council of Chicago, Spertus Museum of Judaica, Fiskdale Museum of African-American History, and the National Training Institute. Candidates conducting research during such on-the-job training may be awarded academic credit. Other internships in social agencies, government or business also may be arranged, course credit is allowed when a research component is included.

Courses

Primarily for Undergraduates

45.00 Cooperative Education Internship 3 s.h.

45.11 American Values 3 s.h.

Introductory to American studies via representative texts.
Graduate Programs

Master of Arts

The M.A. program is general in nature, designed to prepare the student to function 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 36 to 38, depending upon the student's previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. The department also offers a 36-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.

112426 Seminar: Social Anthropology
113301 Seminar: Anthropological Theory
These four courses:
113171 Anthropological Linguistics
113161 Seminar: Archeological Theory and Method
112560 Seminar: Biological Anthropology
113102 Anthropological Data Analysis

Two courses from the following subject areas:
Social institutions
Language
Long-term course in the Department of Linguistics: and Anthropology

No more than 9 semester hours of courses 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, whether 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 exhibit preparation 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 or 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 election are based on the faculty's expertise in given areas or the feasibility of arranged training and guidance.

These are the requirements:
1. At least 72 semester hours of graduate course work.
2. Demonstration of a reading knowledge of one foreign language.
3. Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in branch of mathematics, logic, computer programming, geology, or paleontology).
4. 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.
5. Specialization in a major and minor topical area.
6. A written comprehensive examination in the student's area of specialization.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kind of topics that may serve either as major or minor areas in sociocultural or linguistic anthropology include: textile 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 methods.

All doctoral candidates are required to be adequately oriented in techniques of anthropological 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 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 across 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 Catalog) and be required to submit a completed University application form; transcripts of all previous undergraduate and graduate work; three letters of recommendation from instructors who are familiar with the applicant's potential for graduate training; scores from the aptitude portion of the Graduate Record Examination (GRE); Aptitude Test; and at least one typeset 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 thesis or other major thesis. An applicant who entered as an M.A. without thesis or whose thesis is not completed must submit at least four copies of three papers completed in the course of an M.A. program.

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 arts 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 at least six hours of studio art. The aim of the joint curriculum is to give students a basic understanding 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 70 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.

Crosslisted courses 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 1H1, 1H5, 1H6, and 1H16) 6 s.h.
- Two additional courses exclusive of those courses listed above 6 s.h.
- 1A1-1J Colloquium 2 s.h.
- 1A3 Basic Drawing 2 s.h.
- 1A4 Basic Design 2 s.h.
- Any two of the following courses:
  - 1C60 Ceramics I 2 s.h.
  - 1G84 Introduction to Metallurgical Jewelry 2 s.h.
  - 1J00 Multimedia I 2 s.h.
  - 1N15 Undergraduate Sculpture I 2 s.h.

Two beginning courses, one each from two different studio areas not taken to satisfy the requirements above. 4 s.h.

Beginning courses in areas not listed above are:

**Design:**
- 1D21 Problems in Design I
- 1D22 Problems in Design II
- 1D25 Lettering I
- 1D28 Graphic Design I

**Drawing:**
- 1F7 Life Drawing I
- 1Painting
- 1K9 Painting I
- 1K10 Painting I

**Photography:**
- 1C34 Beginning Photography

**Printmaking**

1M61 Undergraduate Printmaking I

**Fiber Art**

1F191 Printing and Dyeing

1P192 Weaving

Elective 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 coursework at The University of Iowa. A 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 (two courses) from 1H1, 1H5, 1H6, and 1H16, 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 50 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

Honor's 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 15 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 these specific requirements:

1E196 Concepts in Art Education 2 s.h.
1E198 Art Education Studio 3 s.h.
1E143 Methods-Art 3 s.h.
1E105 Advanced Methods-Art 3 s.h.
1S187 Seminar: Curriculum and Studio Art 3 s.h.
1C792 Lab Practice in Elementary Education 3 s.h.
1S101 Observation and Lab Practice in Secondary School 3 s.h.

The following course is elective:

1E230 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 identifier 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; and gain proficiency in techniques of research within selected areas.

Specific requirements include:

- A.B.A. or B.A. degree, with at least 18 semester hours of undergraduate work in art history.
- A minimum of 30 semester hours of graduate-level course work, with a grade-point average of 3.0 or higher.
- At least one one-semester (intermediates) (100-level) course completed with at least a 3.0 grade-point average in each of the following areas of art history: Ancient (to 300 A.D.), Medieval (300-1300), Renaissance to Baroque (1500-1700), Nineteenth Century to Modern, Oriental, and Primitive and Pre-Columbian.

Course distribution for the M.A. in art history is as follows:

- HU 294 Seminar: Methodology of Art History and Criticism 3 s.h.
- Two other art history seminars (with different instructors) 4.5 s.h.
- Additional art history courses 12-21 s.h.
- Studio 0-4 s.h.
- Courses outside the school 0-9 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 9 studio 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 last 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, usually German or French, though other languages, including Oriental languages, may be acceptable. This requirement may be fulfilled by an examination by the appropriate University of Iowa language department satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion of at least a 3.3 grade-point average of the fourth semester of a college or university language course.

Qualification for the M.A. degree requires a comprehensive written examination, 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 with a major in ceramics, terra cotta, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The degree requires:

- The M.A. or B.F.A., in art equivalent to that offered by The University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements).

- At least 18 semester hours of graduate work, including at least 12 semester hours in studio courses, 3 semester hours in the history and theory of art, and up to 6 semester hours of courses outside art and art history.

Clearance for M.A. candidacy by faculty review.

Studio and written theses.

Master of Fine Arts (Studio Only)

The school offers the M.F.A. degree in a major in ceramics, design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The M.F.A. candidate must have an M.A. degree in art equivalent to that offered at The University of Iowa, and, in addition to 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 6 semester hours in a minor studio subject, 4-semester hours in art history and theory of art, and 2 semester hours in courses originating outside the school, clearance for M.A. candidacy by faculty review and written thesis. Thesis 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 detailed knowledge of one or more specialized areas of world art to be selected by the student in conjunction with appropriate faculty members in the school. No more than 36 semester hours of credit earned in any M.A. program may be applied
Art History

Courses

Art History

1101 Understanding the Visual Arts 3 s.h.
Exploration of the historic and symbolic aspects of art required for an understanding of the ways the visual arts are perceived by people and how these perceptions are derived.

1102 The Art of Tribal Cultures 3 s.h.
Traditional arts of the tribal cultures of Africa, Asia, and the Pacific, and of the American Indian before the Europeans came.

1103 Art and Religious Devotion 3 s.h.
Analysis and interpretation of sacred images produced for world religions.

1114 Masterpieces of World Art 3 s.h.
In-depth analysis and interpretation of selected masterpieces of architecture, painting, and sculpture.

1115 Western Art and Culture before 1400 3 s.h.
Interrelations among art, man, and the culture of the pre-Renaissance, early, and medieval periods.

1116 Western Art and Culture after 1400 3 s.h.
Interrelations among art in the great white world, and culture from the Renaissance to the present.

1117 Islamic Art and Civilizations 3 s.h.

1118 Introduction to Italian Art 3 s.h.

1119 Art of the Middle Ages 3 s.h.

1120 Introduction to Russian Art 3 s.h.

1121 Art and Architecture of Mediterranean Civilizations from Mesopotamia to the Age of Caracalla. Same as ART 445.

1122 Introduction to Medieval Art 3 s.h.
Art and architecture in Europe from 300 to 1500 A.D.

1123 Introduction to Renaissance Art 3 s.h.
Art and architecture in Europe from early Renaissance to 1500.

1124 Introduction to Baroque Art 3 s.h.

1125 Introduction to Modern Art 3 s.h.

1126 Introduction to Impressionism Art 3 s.h.

1127 Introduction to African Art 3 s.h.

1128 African Art 3 s.h.

1129 African Art 3 s.h.

1130 Introduction to Asian Art 3 s.h.

1131 Art and Architecture in Asia 3 s.h.

1132 Art History 3 s.h.

For Undergraduates and Graduates

Courses numbered above 100 have as prerequisite an introductory course in the appropriate area or permission of the instructor.

110-110 Art of the Latin Paeds 3 s.h.

110-115 Art of Pre-Columbian America 3 s.h.

110-116 Art of Mexico and Peru before Conquest 3 s.h.

110-119 Art of West Africa 3 s.h.

120-121 Art of Western Europe and the Greek World. Same as ART 125-121.
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 must complete 30 semester hours of courses in Asia, distributed as follows:

- 39-10-11 Second-Year Chinese 12 s.h.
- 39-33-34 Second-Year Hindi 8 s.h.
- 39-23-24 Second-Year Sanskrit 6 s.h.

At least one course on the history of the area whose language they are studying should be included:

- 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.
- 39-155/156 Modern 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 25 s.h.

Many students find a program in Asian Studies major with a major in history, political science, an area history, religion, business, anthropology, or another discipline.

Chinese, Hindi, Japanese, or Sanskrit

This program is intended for students who want to achieve an ability to speak, understand, read, and write Chinese, Hindi, or Japanese, or to read Sanskrit, and to gain knowledge of the literature of China, Japan, or South Asia. Majors are required to complete advanced courses distributed as follows:

For students of Chinese:

- 39-10-11 Second-Year Chinese 12 s.h.
- 39-105-106 Third-Year Chinese 12 s.h.
- 39-141 Chinese Literature; Poetry 1 s.h.
- 39-142 Chinese Literature: Prose 3 s.h.

For students of Hindi:

- 39-33-34 Second-Year Hindi 8 s.h.
- 39-104-105 Third-Year Hindi 6 s.h.
- 39-125-126 Indian Literature 6 s.h.
- 39-127 Indian Devotional Literature in Translation 3 s.h.

*With the approval of the major adviser, students may substitute 3 semester hours of 100-level courses in South Asian studies for students of Japanese:

- 39-105-106 Third-Year Japanese 12 s.h.
- 39-141 Traditional Japanese Literature in Translation 3 s.h.
- 39-142 Modern Japanese Fiction in Translation 3 s.h.

For students of Sanskrit:

- 39-23-24 Second-Year Sanskrit 6 s.h.
- 39-146-147 Third-Year Sanskrit 6 s.h.
- 39-135-136 Indian Literature 6 s.h.
- 39-143 Indian Religious Texts 3 s.h.

*With the approval of the departmental adviser, students may substitute 6 semester hours of 100-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 civilizations of Asia.

Minors

Minors in the languages offered by the department and in the Program in Asian Studies are also available. See the Departmental office for more information.

Honors

Students with a grade-point average of 3.2 or above are encouraged to enroll in the College of Liberal Arts Honors Program. With the permission of the departmental chair and a faculty sponsor selected from among Asian specialists or any department, the student will register for 39-191 Honors Tutorial and 39-192 Senior Honors Thesis. To receive a B.A. with honors, the student must complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Graduate Programs

Master of Arts in Asian Civilization

The graduate program in Asian civilizations provides preparation for doctoral study in a variety of disciplines and may be of interest to students with non-academic career plans for whom graduate-level work in an Asian language and culture would be useful. Students in professional programs are encouraged to consider working toward a concurrent degree in Asian civilizations.

The Master of Arts in Asian Civilization requires a minimum of 30 semester hours in approved graduate course work and the preparation of a master's essay or thesis using Asian-language sources under the supervision of a faculty member. The student's course of study is planned in consultation with a faculty adviser, but normally will focus on one Asian culture (Chinese, Japanese, or South Asian) and include substantial work in one disciplinary field complemented by an appropriate selection of courses in other fields.

Beginning and intermediate level courses in the language of a student's chosen cultural area, however, may not be counted toward the semester hour total. All students must maintain a 3.6 minimum grade-point average and are expected to fulfill the general requirements of the Graduate College.

By the end of their final semester of residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-level of language course work in Chinese or Japanese and the third-year level in Hindi and Sanskrit.

Admission

Applicants for graduate admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 2.5 is required for conditional admission, 3.5 for regular admission. In addition, applicants must submit a writing sample—such as a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literature.

All non-American and foreign applications for graduate awards for the following academic year are due by February 1. Applications for admission without consideration for graduate awards are accepted until July 15 for the fall semester or February 1 for the spring semester. Candidates should take the Graduate Record Examination (GRE) Aptitude Test early, since an admission decision usually cannot be made until scores are received.

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 collections includes approximately 70,000 books, periodicals, and manuscripts. It is particularly strong in literature, history, etc., and philosophy, and it is constantly being augmented.

Courses

Undergraduate Language

10:00 Introduction to Chinese Education Abroad 4 s.h.
- 26:1 Chinese I Introduction to Mandarin, with some instruction in writing characters. Open to nonmajors. Offered in winter session. 4 s.h.
- 26:2 Chinese II Further study of spoken Mandarin with some emphasis on writing Chinese. Offered in winter session. Preliminary knowledge of Mandarin required. 4 s.h.
- 26:3 Beginners Survival Chinese I 3 s.h. (3-1:3) Preliminary knowledge of spoken Chinese required. Students learn the sounds, pronunciation, and basic grammatical patterns of Chinese. They then go on to develop conversational skills needed to carry on simple conversations.
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 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—such as the doctor of philosophy, 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 background for graduate study in biochemistry and related sciences, or 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:

122.05-24 Calculus I-II
or 122.05-26 Engineering Calculus I-II
9.17-19 Introduction to Organic Chemistry
3.73 Principles of Animal Biology
2.10 Introduction to Botany
or 6.17 General Microbiology
or 6.147 Survey of Immunology
or 72.122 Mannalian Physiology
or Other biological areas

4.13 Principles of Chemistry I
4.14 Principles of Chemistry II
4.16 Principles of Chemistry Lab I
4.121-122 Organic Chemistry I-II
4.121 Physical Chemistry I
4.122 Physical Chemistry II
or 99.125 Physical Biochemistry
4.141 Organic Chemistry Laboratory

99.11 Orientation and Introduction to the Field of Biochemistry
99.110 Technical Writing in Biochemistry
102.125 109 Graduate Seminar

(1 a.h. of 99.102 and 2 a.h. of 99.102 required)

99.12 The Chemistry of Biological Materials
99.120 NMR
99.40 Experimental Biochemistry
99.125 Biochemistry of Informational Macromolecules
99.135 Research: Independent Study

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 variety

Biochemistry/LIBERAL ARTS
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.

Undergraduate Programs

The undergraduate degree programs in biology are designed to foster students' understanding and appreciation of living organisms and to prepare students for careers in medicine, dentistry, health-related 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 unite all organisms to living systems, at molecular, cellular, organismic, and population levels. Later, students may follow their own interests 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 programs in ecology and evolution; and biology and the MacCrone Nature Recreation Area. Various 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)

211 Introduction to Botany 4.0 s.h.
273/275 Principles of Animal Biology 5.0 s.h.
*271/273 Fundamental Genetics 3.0 s.h.
*275/279 Fundamental Genetics Laboratory 2.0 s.h.
*271/273 Evolution 4.0 s.h.
272/275 Cell Physiology 4.0 s.h.
Electives in biology, botany, microbiology, or geology (Paleontology) 12.0 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 dissection courses cannot be counted toward the non-science major. Also, the elective credit may not include more than three semester hours in biology and botany honors courses, 2453 Special Topics, and 24/38 Introduction to Research. The elective courses can include up to four 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 1st-semester calculus as prerequisite. The general guidelines in choosing these courses are that they are numbered 100 or above and carry elementary course prerequisites; are meant 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.)

134 114 Principles of Chemistry 4.0 s.h.
134 114 Principles of Chemistry Laboratory 2.0 s.h.
143 143 Organic Chemistry I 3.0 s.h.
192/122 The Chemistry of Biological Materials 3.0 s.h.
291/112 College Physics I 8.0 s.h.
291/112 College Physics I Laboratory 4.0 s.h.
271-178 Introductory Thysics II 8.0 s.h.
202/25 Calculus I 4.0 s.h.
202/25 Calculus II 4.0 s.h.
219/16 Calculus for the Biological Sciences 3.0 s.h.
202/25 Engineering Calculus I 4.0 s.h.
209/19 Expository Writing (or equivalent) 3.0 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 (29 semester hours)

211 Introduction to Botany 4.0 s.h.
313 Principles of Animal Biology 5.0 s.h.
*271/273 Fundamental Genetics 3.0 s.h.
*271/273 Evolution 4.0 s.h.
317/317 Adaptation and Natural Selection 4.0 s.h.

As an investigative laboratory course:

016 Developmental Biology Laboratory 2.0 s.h.
020 Comparative Physiology Laboratory 2.0 s.h.
*270/273 Fundamental Genetics Laboratory 3.0 s.h.
*271/273 Quantitative Field Ecology 5.0 s.h.
315/152 Electron Microscopy Laboratory 2.0 s.h.
*273/275 Techniques in Neurobiology 4.0 s.h.
2127 Enzyme Purification and Characterization 4.0 s.h.
Electives in biology, botany, microbiology, or paleontology 11.0 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 26104 Introduction to Philosophy of Science or 1613 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 (31-53 semester hours)

143/114 Principles of Chemistry I 4.0 s.h.
143/114 Principles of Chemistry Laboratory 2.0 s.h.
143/114 Organic Chemistry I 3.0 s.h.
99/119 Biochemistry 3.0 s.h.
Honors
The honors program in biology gives the superior student membership to a small, active group of undergraduates with common interests. Honors students associate with one of the department's research groups, giving an introduction to the pursuit of practicing science—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 37:196 Honors Laboratory Research or 2:196 Honors Laboratory Research, at least 3 semester hours in 37:197 Honors Reading in Biology or 2:197 Honors Readings in Botany; and at least 1 semester hour in 37:198 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 37:199 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, experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs
The graduate programs of the department are jointly administered by the Department of Botany, and 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 M.Phil. 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 with an M.S. degree have obtained technical or professional positions, some of which require independent responsibility in the management of projects. Others are teaching at the secondary-school level or in 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. Areas of departmental research 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 these 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: development biological, ecology 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 based on original research. Ordinarily, 6 to 8 semester hours are assigned to the thesis research and writing. The remaining hours are selected in consultation with the dissertation 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
score above 1200. Applicants also should take the Graduate Record Examination advanced biology test and submit their scores. Although the department permits 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 walk-in and reach-in 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 polarizing cytoscopes, and those with Nomarski optics. Special facilities exist for the analysis of computerized images and their analysis. 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 electron microscopes, gas-liquid and high-pressure liquid chromatography apparatus; electron amplitoring and recording equipment for neurophysiological studies; desk-top companies, gas-liquid and high-speed scale chromatography and gamma counters for radiotope detection and analysis; constant temperature bath units of various types for metabolism and growth studies; ovens and incubators, recording electromyograph and visible spectrophotometers, densitometers, Coulter counters; instruments for field work; physical ecology; water tables, aquariums, and an "instant ocean" microelevator; tissue culture rooms and human and cold rooms.

Laminators also are equipped for advanced work that calls for specialized biochemical, biophysical, cytological, or zoological techniques.

Iowa Lakeside Laboratory

Courses

Iowa Lakeside Laboratory

Functions in the field of wetlands, ecology, and aquatic biology at the Iowa Lakeside Laboratory extend the "on-campus" work in ecology, for "Iowa Lakeside Laboratory" in this section of the Catalog.

Courses

Primarily for Undergraduates

208.0 Cooperative Education Internship 4 s.h.

217.0 Introductory Animal Biology 4 s.h.

218.0 Comparative Endocrinology 3 s.h.

321.0 Principles of Animal Biology 5 s.h.

Elementary Topics of General Interest

These courses are not open to graduate students and cannot be taken for credit toward a biology major.

248.0 Biology of the Basis 3 s.h.

249.0 Introduction to Animal and Human Behavior 3 s.h.

281.0 Animal Genetics 3 s.h.

281.0 Genetics and Evolution 3 s.h.

282.0 Conservation Biology: Theory and Practice 3 s.h.

For Undergraduates and Graduate Students

215.0 Cooperative Vocational Analysis 3 s.h.

216.0 Basic Skills and Evaluation of Vocational Activities, Information Orientation, Transferable Skills 215 or 275 or 276

216.0 Orientation to Developmental Biology 3 s.h.

216.0 Cell Physiology 3 s.h.

216.0 conveniently oriented in the major approach: angiography, angiography, microangiographic and microangiographic procedures. Pathology of the cardiovascular, nervous systems, and development procedures. 315 and 316

216.0 Cell Physiology 3 s.h.

216.0 conveniently oriented in the major approach: angiography, angiography,
The botany department offers two distinct M.A. degrees—one in the 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 degree 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 conduct a written examination if approved by the guidance committee), 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 (with or 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 (225 and 229) are required; additional research hours may be taken, but no more than nine 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 coursework 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, significance, 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;

Seminars 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 approval.

Present the results of the thesis research at a meeting of the botany seminar, preferably before the thesis defense.

Pass the final doctoral examination, which is primarily a defense of the thesis, 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.

Provision: The numerical requirements are not absolute. For example, a student may compensate for a GRE aptitude Test score slightly below 1100 with a high level of academic achievement.

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.

Provision: The numerical requirements are not absolute. For example, a student may compensate for a GRE aptitude Test score slightly below 1200 with a high level of academic achievement, especially during the M.S. program.

Students applying for admission to the master's program in botany must have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas will need to register as special students (AS) and make up the equivalent of the department's bachelor's degree program prior to a consideration for admission. In addition to the botany and biology courses listed in the undergraduate program, special students will need to complete the chemistry and mathematics requirements to show equivalency.

Students should consult the department chair before attempting to set up a program as special students.

Special provision for foreign students: Admission for foreign students is based on a quantitative score on the GRE Aptitude Test of 650 or greater and a Test of English as a Foreign Language (TOEFL) score of 550 or greater. These scores may be used in place of the total GRE requirement, as outlined above.

Financial Aid

New students wishing to apply for assistantships or fellowships may submit an application for graduate awards forms when applying for admission to graduate study. The application forms 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 (see below); teaching assistantships (TAS), genetics research assistantships, and other sources of support.

Teaching and research assistantships. Appointment to an assistantship requires that the student provide approximately 20 hours per week, or, in some cases, more. 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 and research assistant or two or three years. The first 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 provided by the interdepartmental genetics program from University funds. Applicants whose thesis project is primarily concerned with genetics are eligible to apply.
Summer appointments depend on available summer sessions budget. The department has awarded as many as forty teaching and four research appointments in recent summer sessions. Summer session stipends are two-thirds of the academic year salary. Awards are made for one-half-time service or 20 hours of paid work 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 engage on-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. Students conducting research projects requiring the cultivation of plants have access to greenhouses and specialized rooms with controlled environments. A plant physiology laboratory with associated greenhouses is available.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in cell, tissue, and whole-plant physiology and biochemistry. Biochemical systems, paper chromatography, cytology, and electron microscopy are available.

The College of Agriculture and Life Sciences has large collections of seeds and a plant nursery available for research use. The department has a number of herbariums, with more than 100,000 herbarium specimens in the Northwestern Illinois area.

Anherbariums for research and general study contain more than 200,000 herbarium specimens, including extensive collections of seed plants and ferns from Iowa and the Midwest, and there are special research specimens from Mexico and Central America. The Conservatory features of bryophytes, and a growing repository of fossil paleocones sera.

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 (Stocks) in northwestern Iowa offers facilities for coordinated research in fields of biology, botany, physiology, aquatic ecology, and plant taxonomy (see "Iowa Lakeside Laboratory" in this section of the Coursebook. Students frequently participate in field expeditions to Mexico and Central America.

Qualified graduate students may use the Wieg Computing Center in their research projects.

Courses

Primarily for Undergraduates

2.1 Introduction to Botany 4.0 h
Biology of plant life (microscopical, gross, and histological). Biochemical and physiological aspects of plant growth and reproduction. Botanical laboratory. (Prerequisites: 2.0 or equivalent)

2.2 Iowa Flora 2.0 h
Field and taxonomic study of native and introduced Iowa plants, shrubs, and flowering herbs found in the Iowa region. Descriptions and illustrations of many Iowa species. Botanical laboratory. (Prerequisites: 2.0 or equivalent)

2.3 Biology of the Local Flora 3.0 h
Classification, identification, and evolutionary biology of Iowa's native and introduced plants in the native and introduced vegetation zones. Botanical laboratory. Prerequisite: 2.1 or equivalent.

2.4 Plant Propagation 3.0 h
Study of techniques used in plant propagation: bothsexual methods and controlled pollination, budding and grafting, special culture techniques, seed quality, seed dormancy, and soil bacteriology.

2.5 Spring Flora 3.0 h
Flora of Iowa part II. Nonwoody plant families, native plants, parts from Iowa and elsewhere, and methods of identification and study. Botanical laboratory. Prerequisite: 2.3 or equivalent.

2.6 Plants and Human Affairs 2.5 h
How plants are used, how they must be controlled in an urban, suburban, social, economic, and ecological significance of plants.

2.7 Plant Diversity 4.0 h
A survey of plant life emphasizing the structure, reproduction, morphology, economic adaptations, and economic relationships of major plant groups. Prerequisite: 2.1 or equivalent.

For Undergraduates and Graduates

2.8 Plant Taxonomy 4.0 h
Latomers and their functions in analysis of evolution (three parts: plant ecology, plant morphology, population ecology).

2.9 Algae and Fungi 2.0 h
Survey of algae, fungi, microscopic and macroscopic life, with emphasis on morphology and reproductive biology of major groups. Chapter and section laboratory. Prerequisite: 2.7 or equivalent.

2.10 Introductory Genetics 3.0 h
Basic terms in genetics, Mendelian genetics, chromosomes, molecular biology, and evolution.

2.11 Plant Morphology 4.0 h
Structure and function of the vascular systems, behavior of roots, stems, and leaves. Reproductive biology of flowering herbs. Botanical laboratory. Prerequisite: 2.3 or equivalent.

2.12 Physiology 4.0 h
Study of metabolism and reproduction of herbs and roots. Ultrastructure and function and morphology of tissues and organs. Botanical laboratory. Prerequisite: 2.3 or equivalent.

2.13 Bryology/Lichenology 3.0 h
Lectures, laboratories, and field studies emphasizing anatomy, reproduction, biology, ecological adaptations, and evolutionary relationships of bryophytes, liverworts, and ferns. Prerequisite: 2.1 or equivalent.

2.14 Marine Biology 3.0 h
Study of major groups of marine invertebrates including echinoderms, mollusks, and crustaceans. Prerequisites: 2.1 or equivalent.

2.15 Botany Experimental 3.0 h
Experimental study of living organisms: metabolism, growth, and development of seed plants. Prerequisite: 2.1 or equivalent.

2.16 Soil Ecology 3.0 h
Structure and function of soil food chains and microecological systems. Includes soiltemperature, soil moisture, and soil gas levels. Prerequisites: 2.1 or equivalent.

2.17 Soil Biology 3.0 h
Identification and functional relationships of species, communities, and their environment. Includes green algae, fungi, bacteria, protozoa, nematodes, and other soil organisms. Prerequisites: 2.1 or equivalent.

2.18 Microbial Ecology 3.0 h
Study of microbial nutrition, metabolism, growth, and development of plant pathogens. Prerequisite: 2.1 or equivalent.

2.19 Experimental Ecology 3.0 h
Experimental study of natural ecosystems: metabolism, growth, and development of plants. Prerequisite: 2.1 or equivalent.

2.20 Plant Cell Structure and Function 3.0 h
Lectures, discussions, and seminars on selected topics in plant cell biology and morphology and ultrastructures. Includes the role of plant cell membranes and plant cell wall development. Prerequisites: 2.1 and 4.35 or consent of instructor.

2.21 Plant Cell Biology 3.0 h
Introduction to plant physiology emphasizing structure and function of plant cells and organelles. Topics include photosynthesis, respiration, and reproduction. Prerequisite: 2.1 or equivalent.

2.22 Plant Nutrition 2.0 h
Introduction to principles of plant nutrition emphasizing structure and function of plants and plant nutrients. Prerequisite: 2.1 or equivalent.

2.23 Plant Development 4.0 h
Development, differentiation, and growth of plants. Prerequisite: 2.1 or equivalent.

2.24 Plant Biotechnology 3.0 h
Introduction to plant biotechnology emphasizing the structure and function of plants and plant products. Includes the role of plant cell membranes and plant cell wall development. Prerequisite: 2.1 or equivalent.

2.25 Plant Pathology 3.0 h
Introduction to the control of diseases and the symptoms of disease in plants. Prerequisite: 2.1 or equivalent.

2.26 Plant Pathology 3.0 h
Introduction to the control of diseases and the symptoms of disease in plants. Prerequisite: 2.1 or equivalent.

2.27 Experimental Techniques 3.0 h
Lectures and laboratory studies in plant pathology emphasizing special techniques in plant disease identification, diagnosis, and control. Prerequisite: 2.25 or consent of instructor.

2.28 Experimental Techniques 3.0 h
Introduction to plant molecular biology emphasizing special techniques in plant disease identification, diagnosis, and control. Prerequisite: 2.25 or consent of instructor.

2.29 Plant Tissue Culture 3.0 h
Introduction to the techniques of tissue culture and organ culture of plants and animals. Prerequisite: 2.25 or consent of instructor.

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Chemistry

Claudia: Lea Sirica
Professor	Nicolas, C., Brandon, D., David, C., Robert, C., Leiva, Lucio, John, L., Robert, C. and Maria, C. and Matthew, C.
Professor	Curtis, R. and Evan, C. and Susan, C.
Associate professor	William, E. and Daniel, E. and David, F. and Walter, F.
Degrees offered	B.S., B.A., M.S., Ph.D.

Undergraduate Programs

Bachelors of Science

Present and projected demand for chemists with a B.S. degree is excellent in research and in control and process-development work. The B.S. program also provides all the prerequisites for graduate work in chemistry or biochemistry. These are the major requirements for the B.S. degree:

1. General Chemistry I-II
2. Organic Chemistry I-II
3. Analytical Chemistry I-II
4. physical Chemistry I-II
5. Inorganic Chemistry I-II
6. Spectroscopy I-II
7. Biochemistry I-II
8. Physical Chemistry I-II
9. Mathematical Chemistry I-II
10. Laboratory Techniques I-II
11. Instrumental Analysis I-II
12. Advanced Calculus I-II
13. Advanced Physics I-II
14. Advanced Chemistry I-II
15. Advanced Mathematics I-II
16. Advanced Biology I-II
17. Advanced Geology I-II
18. Advanced Chemistry I-II
19. Advanced Physics I-II
20. Advanced Biology I-II
21. Advanced Geography I-II
22. Advanced Economics I-II
23. Advanced History I-II
24. Advanced Political Science I-II
25. Advanced English I-II
26. Advanced Social Studies I-II
27. Advanced Computer Science I-II
28. Advanced Electrical Engineering I-II
29. Advanced Mechanical Engineering I-II
30. Advanced Civil Engineering I-II
31. Advanced Chemical Engineering I-II
32. Advanced Materials Science I-II
33. Advanced Environmental Science I-II
34. Advanced Environmental Engineering I-II
35. Advanced Environmental Chemistry I-II
36. Advanced Environmental Physics I-II
37. Advanced Environmental Biology I-II
38. Advanced Environmental Geology I-II
39. Advanced Environmental Economics I-II
40. Advanced Environmental History I-II
41. Advanced Environmental Political Science I-II
42. Advanced Environmental English I-II
43. Advanced Environmental Social Studies I-II
44. Advanced Environmental Computer Science I-II
45. Advanced Environmental Electrical Engineering I-II
46. Advanced Environmental Mechanical Engineering I-II
47. Advanced Environmental Civil Engineering I-II
48. Advanced Environmental Chemical Engineering I-II
49. Advanced Environmental Materials Science I-II
50. Advanced Environmental Environmental Science I-II
51. Advanced Environmental Engineering I-II
52. Advanced Environmental Chemistry I-II
53. Advanced Environmental Physics I-II
54. Advanced Environmental Biology I-II
55. Advanced Environmental Geology I-II
56. Advanced Environmental Economics I-II
57. Advanced Environmental History I-II
58. Advanced Environmental Political Science I-II
59. Advanced Environmental English I-II
60. Advanced Environmental Social Studies I-II
61. Advanced Environmental Computer Science I-II
62. Advanced Environmental Electrical Engineering I-II
63. Advanced Environmental Mechanical Engineering I-II
64. Advanced Environmental Civil Engineering I-II
65. Advanced Environmental Chemical Engineering I-II
66. Advanced Environmental Materials Science I-II
67. Advanced Environmental Environmental Science I-II
68. Advanced Environmental Engineering I-II
69. Advanced Environmental Chemistry I-II
70. Advanced Environmental Physics I-II
71. Advanced Environmental Biology I-II
72. Advanced Environmental Geology I-II
73. Advanced Environmental Economics I-II
74. Advanced Environmental History I-II
75. Advanced Environmental Political Science I-II
76. Advanced Environmental English I-II
77. Advanced Environmental Social Studies I-II
78. Advanced Environmental Computer Science I-II
79. Advanced Environmental Electrical Engineering I-II
80. Advanced Environmental Mechanical Engineering I-II
81. Advanced Environmental Civil Engineering I-II
82. Advanced Environmental Chemical Engineering I-II
83. Advanced Environmental Materials Science I-II
84. Advanced Environmental Environmental Science I-II
85. Advanced Environmental Engineering I-II
86. Advanced Environmental Chemistry I-II
87. Advanced Environmental Physics I-II
88. Advanced Environmental Biology I-II
89. Advanced Environmental Geology I-II
90. Advanced Environmental Economics I-II
91. Advanced Environmental History I-II
92. Advanced Environmental Political Science I-II
93. Advanced Environmental English I-II
94. Advanced Environmental Social Studies I-II
95. Advanced Environmental Computer Science I-II
96. Advanced Environmental Electrical Engineering I-II
97. Advanced Environmental Mechanical Engineering I-II
98. Advanced Environmental Civil Engineering I-II
99. Advanced Environmental Chemical Engineering I-II
100. Advanced Environmental Materials Science I-II
101. Advanced Environmental Environmental Science I-II
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 at least one of the subfields of chemistry, and in physical chemistry by passing specific examinations (given twice a year) or by enrolling in an equivalent undergraduate 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 2.0 is required for admission to the master's examination.

PhD Programs

A program of study for the Ph.D. degree is allowed in the areas listed for the M.S. degree, and includes the undergraduate competency examinations. Courses required for the M.S. degree, additional courses that may be required, the major thesis, and research.

Graduate students who have not met the course requirements with a cumulative grade-point average of 3.0 are admitted to the oral comprehensive examinations upon presentation and preliminary approval 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 must present the thesis, which is then distributed for oral examination. The final examination consists of an oral defense of the thesis, at this time a manuscript of the publishable portion of the thesis is presented.

Interdisciplinary Programs

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematical sciences and in chemical physics. "Graduate Program in the Chemical Sciences." Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.
Only the class information is readable and useable.
Greek
14.11-12 Second-Year Greek
6 s.h.
All courses numbered 14.11-12 or higher Courses numbered 14.100-120 do not count toward the minor, because they are not courses in Greek.

Latin
20.16-17 Intermediate Latin I-II
6 s.h.
20.81 Age of Cicero
3 s.h.
20.82 Age of Augustus
3 s.h.
All courses numbered 20.16-121 or higher Courses numbered 20.100-120 do not count toward the minor because they are not courses in Latin language.

Classics
14.4-12 Second-Year Greek
6 s.h.
20.16-17 Intermediate Latin I-II
6 s.h.
20.81 Age of Cicero
3 s.h.
20.82 Age of Augustus
3 s.h.
These courses or their equivalents are required for the minor in classics, so that students will have had both Greek and Latin.

Honors
For exceptional seniors who earn a 3.5 grade-point average in their first three years of classic courses, two courses are offered in honors reading, one each semester of the senior year, for 3 semester hours of credit each semester. These courses are offered by the instructor, or a field is ancient history or literature chosen by the student and the instructor. During the first semester under graduate 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 may earn a minor in the department in four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered for the minor:

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 (outside Latin) (3 s.h.) or equivalent
Advanced Latin composition (3 s.h.) or equivalent

Required Ph.D. Examinations
Precomprehensive French competence or Latin competencies

Special field or author—3 hours, written
Oral or written examination—1 hour

Dissertation
Classics in English.

All readings for these courses are in English; no previous knowledge of Greek or Latin is necessary.

141.03 The Classical View. 3 units.
Reading and discussion of the first three books of the Historia Naturalis of Pliny, as well as other works by Greek and Roman authors on the ancient natural world, in the context of the ancient classical view of the human condition.

141.10 Ancient Greek Literature. 3 units.
An introduction to ancient Greek literature, including works by Homer, Aeschylus, Sophocles, Euripides, Aristophanes, Plato, Aristotle, Demosthenes, and Cicero. Note: No previous knowledge of Greek required.

141.11 Early Greek Art. 3 units.
Architectural, pictorial, and decorative arts in Mycenaean to Classical times. Same as 161.02.

141.12 Classical Mythology. 3 units.
An exploration of the myths and legends that form the basis of Western cultural and literary tradition.

141.13 Early Christianity and Early Byzantine Art. 3 units.
Same as 141.12, 161.02.

141.14 Greek vase painting. 3 units.
A study of Greek painted pottery, from Pre-Pottery to Hellenistic times. Same as 141.12, 161.02.

141.15 Greek and Early Byzantine Architecture. 3 units.
Same as 141.12, 161.02.

141.16 Art in Ancient Civilizations. 3 units.
Surveys of major artistic traditions in the ancient world.

141.17 Italian Art. 3 units.
Topics in the history and development of Italian art from its earliest beginnings to the 20th century.

141.18 Islamic Art. 3 units.
The history and development of Islamic art from its earliest beginnings to the 20th century.

Undergraduate Programs

Seniors and seniors seeking a general Bachelor of Arts degree in communication studies must earn:

At least 60 semester hours in the department, including at least three courses in each of the two undergraduate concentrations.

Majors may specialize in communication, broadcasting, and film, or communication education. The additional requirements for these emphases are cited in the division sections.

Communication Studies

Chair: Bruce E. Granbeck

Professor: Charles C. Ashman, J. Dudley Andrew, Samuel L. Becker, John W. Brown, Steven Duker, Bruce E. Granbeck, Michael Calvita McGregor, Franklin Miller, Domonkos J. Olas

Emphasis: (1) Digital Media Arts, (2) Media and Society, (3) Digital Media Education. Students majoring in Communication Studies should take a course in English or History.

Honors

A major with honors in communication studies requires maintenance of a 3.2 grade-point average, membership in the College of Communication Honor Program, and completion of an honors thesis in the senior year. The honors thesis, which may be taken for 3-6 semester hours of credit over two semesters, offers a unique opportunity for students to develop their knowledge in a selected area. As prerequisites to
A semester internship is an assigned teaching position; satisfactory performance on a one-hour written examination covering area of learning agreed upon by the student and his or her graduate committee; and successful completion of such additional requirements as are specified by the departmental division in which the student's work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

- A minimum of 94 semester hours of graduate credit, exclusive of dissertation, and including a 12-hour sequence in an approved research skill.
- A minimum of 10 semester hours of dissertation credit.
- 30,000 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 cooperation with the student.
- Successful completion of a qualifying and a pre-dissertation examination in the student's major research area.
- A substantial scholarly dissertation.
- 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 in 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 the Introduction to Research; a course in teaching the 1st semester; an approved seminar; and at least 18 semester hours completed in the College of Education graduate program, a higher education.
- Successful completion of a research report.

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 control room, areas for animation and graphics production, a radio studio, and an advanced 24-track studio that serves the needs of courses throughout the program. 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, individual viewing areas, a lab complex for experimental and survey research, and a computer for research efforts. The Communication Studies Building is one of the best facilities of its kind in higher education.

Interdisciplinary Courses

36:190 Cooperative Education Internship 11.0 s.h.
36:191 Communication Studies 3.0 s.h.
Methods of analysis, theory review, communication theory, and research design. Emphasis on experimental design, laboratory, debate, paraphernalia, and original research. Open only to high school students with high school seniors' review credit.
36:195 Honors College 1.0 s.h.
36:199 Honors in Communication Studies 2.0 s.h.
36:199 Problems in Communication Studies 1.0 s.h.
Open to any student who fulfills the prerequisites of the course.
36:199 Workshop in Teaching Communication and Forensic Methodology, preparation and evaluation in the classroom and laboratory setting. Emphasis on courses and techniques for teaching. Discussion and practice in the following topics: organization and delivery, individual speech, dramatics, and group procedures. Credit: 3.0 s.h.
36:240 Independent Study 1.0 s.h.
36:290 Introduction to Research 1.0 s.h.
Involves an overview and planning research project. Study and application of research methods and techniques of research bibliographic tools.
36:350 Master's Thesis 1.0 s.h.
36:360 Ph.D. Dissertation 1.0 s.h.

Communication Education

Professor in Charge: Dwayne M. Trask

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

The communication teaching major requires a minimum of 33 semester hours of Communication Studies. Students should include the following in their program: 49:529 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 Teacher Education Program foundations courses, students seeking teacher certification in communication and theatre also must register for:

75:100 Methods: Communication 3.0 s.h.
75:109 Methods: Communication 3.0 s.h.
75:191-192 Observation and Laboratory Practice in the Secondary School 12.0 s.h.
75:167 Seminar: Curriculum and Student Teaching 1.0 s.h.

To strengthen both their major and their employment opportunities, students are advised to complete a minor certification in
36:042 Interpersonal Communication Research 3 s.h.
Introduction to interpersonal communication research and the writing and reading of research articles in the field of interpersonal communication.

36:052 Rhetorical and Communication Theory Community 3 s.h.
Critical analysis of research in rhetorical and communication theory.

36:054 Seminar: Interpersonal Communication 3 s.h.
Recent research in the field of interpersonal communication.

36:055 Seminar: Organizational Communication Theory 3 s.h.
Same as 36:052.

Rhetorical Studies

Professor: Michael Calvin McGee
Degrees offered: M.A., Ph.D.

The program in rhetorical studies leads to either 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 100-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 specialized areas of rhetorical theory are offered at the 400-level. Proseminars (300-level) and seminars (400-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. Thai goal usually is not to work in the division and in other parts of the department and University. The division 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:

- 36:060 Introduction to Research: At least 15 semester hours of courses is rhetorical studies, including 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.

Doctor of Philosophy

The program in the Ph.D. in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives emphasized in this division and to develop research competency essential to a life of productive scholarship.

Work in related departments—political science, history, sociology, English, comparative literature, American studies, and journalism—complements rhetorical studies course offerings. Many doctoral students also do extensive work in broadening their skills for communication research to improve their range of teaching opportunities and their research skills.

Persons who want information on basic requirements should write to the department. Teaching and research assistantships are available; evaluation of these applications begins mid-fall each year.

Courses

36:016 Critical Thinking 3 s.h.
Survey of approaches to the logical analysis of communication artifacts, acts, and events, introduction to the art of rhetorical essay writing.

36:033 Greek and Roman Public Address 2-4 s.h.
Historical and critical study of public and oratory in communications from the fifth century B.C. to the third century B.C., consideration of Socrates, ancient oral orator, Cicero, and early church leaders.

36:035 American Public Address 2-4 s.h.
Historical and critical study of American public discourse in various fields: politics, business, religion, education, professions, and newspapers.

36:040 Propaganda Address 3 s.h.
36:042 Rhetoric 3 s.h.
36:052 Rhetoric 3 s.h.
36:054 Seminar: Interpersonal Communication 3 s.h.
36:055 Seminar: Organizational Communication Theory 3 s.h.

Academic Calendar

Spring 2022

36:052 Seminar: Communication Research 3 s.h.

36:053 Seminar: Rhetorical and Communication Theory Community 3 s.h.

36:054 Seminar: Interpersonal Communication 3 s.h.

36:055 Seminar: Organizational Communication Theory 3 s.h.

36:042 Interpersonal Communication Research 3 s.h.

36:052 Rhetorical and Communication Theory Community 3 s.h.

36:054 Seminar: Interpersonal Communication 3 s.h.

36:055 Seminar: Organizational Communication Theory 3 s.h.

36:042 Interpersonal Communication Research 3 s.h.

36:052 Rhetorical and Communication Theory Community 3 s.h.

36:054 Seminar: Interpersonal Communication 3 s.h.

36:055 Seminar: Organizational Communication Theory 3 s.h.

36:042 Interpersonal Communication Research 3 s.h.

36:052 Rhetorical and Communication Theory Community 3 s.h.

36:054 Seminar: Interpersonal Communication 3 s.h.

36:055 Seminar: Organizational Communication Theory 3 s.h.

36:042 Interpersonal Communication Research 3 s.h.

36:052 Rhetorical and Communication Theory Community 3 s.h.

36:054 Seminar: Interpersonal Communication 3 s.h.

36:055 Seminar: Organizational Communication Theory 3 s.h.
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.

majors 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:
- 4840.41 Major Texts in World Literature I. 6 s.h.
- 4850 Non-Western Literary Traditions. 3 s.h.
- 4890 Undergraduate Seminar. 3 s.h.
- 48100 Introduction to Critical Problems. 3 s.h.
- An elective comparative literature course at the 100 level. 3 a.r.

Foreign Literature

Students should take 9 semester hours of courses in one foreign literature (read in the original language) beyond those completed in the core requirement of 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 enrolling 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 48100 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 advisors, students choose courses in comparative literature and in the individual allied departments to form a coherent program of study. Final degree requirements may be satisfied by a written examination or reading lists agreed upon by students and their advisors, or by a written thesis and an oral examination on the thesis and its relation to problems and topics in comparative literature. The M.A. may also be awarded after 45 semester hours of study with a grade-point average of 3.25, and following successful completion of the comprehensive examination for the Ph.D.

Ph.D. in Comparative Literature

Students seeking the doctorate in comparative literature study at least three literatures; one is studied in historical depth, and two others in limited areas of specialization. An interdisciplinary area of concentration is encouraged. All candidates devise a portion of their program to comparative study that brings the several areas into focus. Specific areas and interconnections 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 program office.

Courses

4840 Cooperative Education Internship 3 s.h.
4840 Major Texts in World Literature I 3 s.h.
4840 Reading and analysis of major literary texts from Homer to the Renaissance in chronological sequence; emphasis currently on Middle Ages and the Renaissance. Approved by Humanities General Education Requirement. Same as 4850.
4841 Major Texts of World Literature II 3 s.h.
4841 Reading and analysis of major literary texts from 1800 to 1950 in chronological sequence; emphasis currently on 1800s and the contemporary period. Approved by Humanities General Education Requirement. Same as 4851.
4850 Non-Western Literary Traditions 3 s.h.
4850 Introduction to the literatures of the non-European societies of the western hemisphere, Africa, Asia, and the Pacific. (Not open to students with credit in 4850 or 4856.) Students in the department may be exempted with special approval. (Primarily for majors in the department; approved by Humanities General Education Requirement. Same as 4840.)
4851-52 Introduction to Informal Analysis 3 s.h.
4851 Methods of applying various modes of thought, from empirical to poetic, to literary works from the Ancient and European traditions, methods studied include critical, descriptive, and interpretative analysis. Approved by Humanities General Education Requirement. Same as 4851.
4855 Comparative Approaches to Art 3 s.h.
4855 Introduction to the comparative study of art in the west and east. Approved by Humanities General Education Requirement. Same as 4855.
4856-57 Undergraduate Seminar 3 s.h.
4856-57 Undergraduate Seminar in Art History. approved by Humanities General Education Requirement. Same as 4855.
4858-59 Literature and the Culture of the Middle Ages 3 s.h.
4860-61 European Literature of the Nineteenth Century 3 s.h.
4862-63 Literary Theory I 3 s.h.
4864-65 Literary Theory II 3 s.h.
4866-67 Literary Theory III 3 s.h.
4868-69 Literary Theory IV 3 s.h.
4870-71 Literary Theory V 3 s.h.
4872-73 Literary Theory VI 3 s.h.
4874-75 Literary Theory VII 3 s.h.
4876-77 Literary Theory VIII 3 s.h.
4878-79 Literary Theory IX 3 s.h.
4880-81 Literary Theory X 3 s.h.
4882-83 Literary Theory XI 3 s.h.
4884-85 Literary Theory XII 3 s.h.
Computer Science

See "Division of Mathematical Sciences."

Dental Hygiene

See "College of Dentistry."

Economics

Chair: Andrew J. Pelczer


Associate professors: Anthony Costanzo, Paul Clouse, George Pech

Assistant professors: Michael Babik, Russell Cooper, Joel Halmont, John Kiyvos, Forrest Nelson, Raymond Riesman, Charles Withman

Adjunct professors: J. Richard Zehra

Degree offered: M.A.

Economics is concerned primarily with the analysis and description of the production, distribution, and consumption of goods and services in society. It involves the systematic study of topics such as wealth and poverty, money and banking, income and consumption, government expenditures and taxation, prosperity and depression, inflation and unemployment, big business and labor unions, and hundreds of other matters that intimately affect the way people live.

The purpose of study in economics is to help us gain a better understanding of the workings of the economic system and to equip us with the knowledge and skills necessary to participate effectively in it.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent background for a variety of professions in business and government. Graduates find employment in banking, insurance, financial institutions, natural resource firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulations, and analyses. Economics is also considered an excellent preparation for law
schools 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 both 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.A. 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:
222:17 Quantitative Methods I and 222:28 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 both (6E:103) or (6E:105) Microeconomics and 6E:222 Principles of Macroeconomics, or senior standing.
Credit earned in 6E: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 the courses:

225:25-26 Calculus I-II

222:120 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 6E: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:184 and above.

Honors Program
Students working toward the B.A. or B.S. degrees 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 B.S. major in Economics and 6E:105 Macroeconomics, and must have an overall grade-point average of at least 3.2. Honors students enroll 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 (6E:1) Principles of Microeconomics and 6E:2 Principles of Macroeconomics satisfy the College of Liberal Arts general education requirement in social sciences and provide an introduction to specialized topics of upper-division courses. Students with limited exposure to economics may require the content of lower-division public policy issues in 6E:1 Contemporary Economic Problems and Policy.

Course work in economics can be related to majors in many other fields—for example, history majors might take 6E:151 American Economic History and 6E:103 Microeconomics; political science majors might take 6E:119 Economics of the Government Sector and 6E:141 Economics of American Industries. A number of students combine related elements in majors by taking 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 20 months.

Within the M.A. program, the department offers concentrations in economics, economic history, history of economic thought, industrial organization, international economics, labor economics, mathematical economics, monetary economics and policy, public finance, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student will select 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.

Courses
Primarily for Undergraduates

ECON 0000 Economics Internship 3 s.h.
6E:1 Principles of Microeconomics 3 s.h.
6E:2 Principles of Macroeconomics 3 s.h.
6E:3 Principles of Econometrics 4 s.h.
6E:4 Principles of Economic History 3 s.h.
6E:151 American Economic History and 6E:103 Microeconomics 4 s.h.
6E:199 Economics of the Government Sector and 6E:141 Economics of American Industries 4 s.h.
6E:105 Macroeconomics 4 s.h.
6E:119 Economics of the Government Sector 3 s.h.
6E:120 Policy, Employment, and Production Theory 3 s.h.
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Education

See “College of Education.”

English

Chair: John Bartun

Associate professors: Angélique Bertyer, G. Robert  Carbon, Robert D. Dargin, Paul Eng, John E.  Gaster, W. R. Ives, Alexander Koss, Baldwin  MacDowell, Frederick W. McDonald, John C.  McCullough, William J. Pad


Associate professor emeritus: Charles T. Miller  Lerner, Joseph Miller, John Miller, Robert  Musser, William Oster, Robert F. Sawyer,  Frederick Wolf

Associate professor emeritus: Charles T. Miller  Lerner, Joseph Miller, John Miller, Robert  Musser, William Oster, Robert F. Sawyer,  Frederick Wolf

Degree offered: B.A. (M.A., (Writing),  M.A., M.A., Ph.D.)

The Department of English offers courses in literature, language, and writing. These courses provide opportunities for students to learn about and methods for understanding literary history, interpretive theory, writing, the craft of poetry, fiction, and

Mediation. In addition to providing these essential elements of a liberal education, the department offers courses on background for students who have specialized interests in other fields and participate in interdisciplinary programs such as American Studies, African-American World History, Comparative Literature, Literature, Science, and Art, and the Interdisciplinary Studies.

Although most of the Ph.D. program is preparing for careers in research and teaching, and in the M.F.A. program are preparing for lives as poets and storytellers, the Ph.D., M.A., and M.F.A. (Writing) programs provide valuable opportunities for careers in their own fields. Students who have taken English courses at The University of Iowa are now writing for advertising, newspapers, and book publishers, teaching in primary and secondary schools, practicing law and medicine, working in business and industry, and participating in state and federal government. As far as possible, each academic program is geared to meet students' individual needs and objectives.

Undergraduate Programs

Bachelor of Arts

A Bachelor of Arts degree with a major in English requires between 30 and 50 semester hours of courses offered by the Department of English, 5 of which must be taken in residence at The University of Iowa. In addition, students must complete a minimum of 12 semester hours of courses offered by the Department of English, 5 of which must be taken in residence at The University of Iowa. In conference with their academic advisors, students formulate programs of study designed to satisfy their current interests and achieve their future goals. Normally they begin with courses emphasizing close reading of poetry, fiction, drama, and expository or argumentative prose. Later they study particular literary forms and the literature and culture of selected historical periods.

English majors also may take courses in such diverse subjects as folklore, literature and film, or print and book design. They may also study the history and structure of the English language, or they may do advanced work in either imaginative writing (poetry, fiction, and drama) or expository writing (essays, grammar and style, and writing for business or the sciences).

To strengthen their understanding of literature, English majors are encouraged to choose elective courses from disciplines such as history, classical or modern foreign literature, speech, film, and the fine arts. Students who plan to teach in primary or secondary schools will add appropriate courses in education. Those seeking careers in other fields may elect courses in business, prelaw, or the sciences.

Students interested in the English major should consult the director of undergraduate study in the English Department office. It is English Philosophy Building. In the office, they may obtain a pamphlet on English. For English Majors and other printed material explaining departmental programs, courses, and special events.

General Education Waivers for English Majors

Students who declare English majors are not required to take the core courses as part of their general education requirements in humanities, but must take 6 semester hours of approved humanities course work outside of the department.

Minor

A minor in English requires 16 semester hours of course work in Department of English courses. Twelve of these semester hours should be in advanced courses (812 and above) taken at The University of Iowa. Courses for the liberal arts General Education Requirements do not contribute toward the minor in English.

Honors

The English major with honors is designed to encourage talented students to explore a wide range of literary experience and to achieve a mastery of literary works. During the junior year, an honors student takes a special honors seminar whose successful completion qualifies the student to continue in the program. Then the student uses the first semester of his or her senior year to complete an honors paper, either critical or creative, which is advised by any faculty member and evaluated by the honors committee. Honors study is planned in consultation with the chair of the honors in English and members of the honors committee. Students must complete 18 semester hours at The University of Iowa, although courses can be adapted to the student's needs, but students interested in earning honors in English are urged to consult the chair of honors as soon as possible.

Creative Writing

Many undergraduates come to The University of Iowa because of the excellence of its creative writing program. With the consent of his or her advisor, any student may elect the undergraduate course in creative writing. These are WR-150 Creative Writing, WR-151 Fiction Writing, and WR-152 Poetry Writing. Admission to the undergraduate workshops in fiction and poetry (WR-150 Undergraduate Writers' Workshop Fiction and WR-154 Undergraduate Writers' Workshop Poetry) is only by permission of the instructor. Students who wish to take part in these workshops must submit
sangout of their poetry or fiction to the Western Workshop no earlier than a week before registration, and no later than the last day of registration.

English and Education

The department offers a flexible undergraduate program for majors planning to teach English in elementary and secondary schools, and for 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 in 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, folk 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. All students should learn to understand language development and how language can be used in various speaking and writing situations.

Since communication also occurs visually, students should explore the protocols of reading, the first stages of learning to read through advanced stages when a reader comes increasingly to understand and respond to models of written and visual communication.

All of these areas of study can be facilitated by courses within the department, except the exploration of the processes of reading. That area can be facilitated by courses in the College of Education.

Prospective English majors should remember that an undergraduate degree represents only minimal training, and they should plan a program that will permit graduate study at a later date.

English majors seeking teacher certification must plan with their advisors appropriate education courses to be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any course work.

The department also participates in a joint major in English and elementary education. These students must consult their advisors in elementary education.

Students who seek certification for secondary teaching in fields other than English may seek certification in Spanish, French, or German. These students must complete the lower two years of a world language and English, excluding freshman courses in rhetoric, speech, or writing.

The English minor certification program may include a course in each of these areas: advanced composition, linguistics, Shakespeare, American literature, and British literature of the nineteenth or twentieth centuries. In addition to the 20 semester hours of English, the student is required to take 75115 Methods: English in the College of Education's Division of Secondary Education.

While this program meets minimum requirements for certification, the department believes that advanced teaching to teach English should have considerably more training in the field.

Graduate Programs

Master of Arts (Literary Studies)

The M.A. in literary studies is a program for students who wish to acquire an understanding of what it means to study literature professionally. Those who seek an M.A. in literary studies may include students wishing to "test the waters" before deciding whether to pursue their educational goals in a Ph.D. program, teachers who wish to gain more credit toward tenure, or independent readers and writers seeking intellectual growth unrelated to a specific career objective. All M.A. students are full participants in the community of the department and may enroll in any of the graduate courses or seminars.

The requirements for the degree are designed to give the student a general knowledge of the periods, movements, and major works of both English and American literary history, to develop his/ her ability to handle language and expression, and to introduce some critical methods of literary study. Each of the requirements allows a wide choice of courses within the specified areas.

Elective courses, which constitute about one-third of the course work toward the degree, may be chosen from graduate courses both inside and outside the English department. The program's flexibility enables students, consulting closely with their advisors, to tailor their plan of study to the pattern of their interests. Depending on whether the student takes an examination or writes a thesis, the program requires either 30 or 32 semester hours of graduate-level credit. 24 hours of which must be earned in residence with a grade-point average no lower than 3.0.

Course Requirements

Literary history (five courses: one each from five of six historical periods, at least one of which must be taken at or above the 200 level)

Language and writing (one course in the history, philosophy, psychology, or pedagogy of language or in the art or teaching of expository writing)

Critical methods (one course in critical theory or methodology)

Thesis or Comprehensive Examination

There are two ways of completing the program:

The usual conclusion is an 84-hour written comprehensive examination based on a reading list drawn from the various periods of English and American literature. Students may obtain copies of the current reading list from the graduate secretary.

Students with strong academic records, solid writing skills, and a desire to explore a delimited topic at length may propose to the committee for permission to write an M.A. thesis in literary studies. The thesis is a critical or scholarly work of about 10,000 words (approximately 40 pages) written under the supervision of a thesis committee and requiring registration for (no less than) 15 semester hours of credit over the 30 hours of required course work.

Students who receive permission to proceed must assemble a thesis committee, receive the committee's approval of the thesis proposal, and pass an oral defense of the completed thesis.

Master of Arts (Expository Writing)

This program emphasizes the theory, analysis, practice, and pedagogy of expository writing for students wishing to become teachers or critics of expository writing, or who have a strong interest in such as the humanities, journalism, and technical fields, or fine-tune their work.

Normally, the program takes three to four semesters to complete.

To qualify for the M.A. with emphasis in expository writing, a student must complete 36 semester hours of graduate work with a grade-point average no lower than 3.0. At least 39 of the semester hours must be earned in residence at The University of Iowa, including a minimum of 24 semester hours of work in advanced composition with a grade of B or better. In addition to the 30
several 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 other departments, 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 piece of expository writing; there will be no oral examination covering the project, and the finished 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 prior achievement or notable promise in writing poetry or fiction. The requirements, which are flexible, usually include 48 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 to prepare for the teaching, publishing, and service careers of college and 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 and stylistics, philosophy, bibliography, pedagogical comparative literature, and linguistics.
Requirements for the Ph.D. include:
Formal admission to candidacy 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-oral 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 Honors 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 Ph.D. program in the Graduate College. Applications and all necessary supporting material must be submitted by January 1 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission
For admission requirements, obtain the handbook entitled "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 1932 it became the first institution of higher education to accept creative dissertations for advanced degree programs.
Funded in 1936, the Writers Workshop was a pioneer in the field of creative writing. It numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors, and also brings numerous prominent authors to camp each year for lectures and readings.
The International Writing Program, founded in 1966, brings numbers of prominent international writers to campus each year.
The University of Iowa also has a leader in the area of expository writing and rhetorical theory. It 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.

Several regularly published under the department's name The Iowa Review, The Mycetes Quarterly, The Wyal Rights Quarterly, and Philosophical Quarterly. These illustrate the opportunities for especially qualified graduate students as research assistants or editorial assistants. 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 Windover 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. Nearly a week goes by when there are not two or three 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 academic year to the next. 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 2G.1 The Interpretation of Literature, and two other approved humanities courses, 2GL (or its equivalent by examination or transfer) in another discipline, the two other courses (2G.2 through 2G.10), and therefore must be taken first. The pass-cum-passer 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
For Undergraduates and Graduates

Criminal Problems
0.009 Introduction to Criminal Problems
0.010 Restricting the American Canon

Literature and Culture
Primary aim: advanced undergraduate and beginning graduate students. These lecture courses are designed to present major works and authors within the context of the social, political, intellectual, and artistic movements of their time. Students who have established backgrounds in history or related arts are especially welcome. Undergraduate majors in English are urged to include at least one literature and culture course in the latter half of their majors.

0.011 Literature and Culture of the Middle Ages
0.012 Literature and Culture of the Renaissance
0.013 Literature and Culture of the Eighteenth Century
0.014 Literature and Culture of the Nineteenth Century
0.015 Literature and Culture of the Twentieth Century

0.016 American Criticism and Culture 1860 to Present
0.019 Anglo-Irish Literature and Culture
0.020 Literature and Culture of America Before 1800
0.021 Literature and Culture of the Twentieth Century

0.022 Women’s American Culture
0.023 Post-American Literature and Culture

Ethnic and Regional Studies
0.024 American Folk Literature
0.026 Native American Literature
0.027 African American Literature
0.028 Asian American Literature
0.029 Hispanic American Literature

For Undergraduates and Graduates

0.008 Cooperative Education Internship

Lecture courses are open to all undergraduates who have satisfied the prerequisite requirement.

0.011 Modern Fiction
0.012 Modern Poetry
0.013 Modern Drama

Seminars for Undergraduate Majors
0.015 Freshman Seminar
0.016 Modern Issues Seminar

0.017 Undergraduate Seminar

Prerequisite: English major enrollment of instructor.
European Literatures

8180 European Literature of the Nineteenth Century
Same as 45.30.

8181 European Literary Genres in European Literature II
Same as 45.11.

8182 European Literary Theory
Same as 45.11.

8190 Augustan to Rococo
Same as 45.10.

8192 Dante and Roman Poetry
Same as 45.10.

8193 Celtic and Norse Traditions
Same as 45.10.

Women's Studies.

8210 Regional Women Writers
Same as 131.155.

8211 Women in Literature
Same as 131.155.

8218 Changing Conceptions of Women in Literature
Same as 131.155.

8250 Poets by Women Writers
Same as 131.155.

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

8499 Children's Poetry
Same as 45.165.

8511 British Poetry
Same as 45.165.

8512 American Poetry
Same as 45.165.

8513 British and American Poetry Seminar
Same as 45.165.

8517 Contemporary Verse in Poetry
Same as 45.165.

8530 Selected Modern Poets
Same as 45.165.

8550 Studies in the Poetry of the Golden Age
Same as 139.177.

8560 Victorian and Twentieth-Century English Poetry
Same as 45.165.

8564 Poetry by Women Writers
Same as 45.165.

Fiction

8510 Images of Black Women in Modern American Fiction
Same as 139.120.

8511 Narrative Tradition
Same as 45.120.

8513 The English Novel: Delius to Austin
Same as 45.120.

8513 English Novel: Scott to Bodler
Same as 45.120.

8514 Austen: 1800-1800
Same as 45.120.

8516 Victorian and Modern Fiction
Same as 45.120.

8519 The European Novel 1730-1850
Same as 45.120.

8520 The European Novel 1850 to Present
Same as 45.120.

8524 Contemporary Genre Fiction
Same as 45.120.

8525 Popular Literature
Same as 45.120.

8526 Fiction in the Fiction of Afro-American
Same as 45.120.

8526 African Novel
Same as 45.120.

8526 Science Fiction I
Same as 45.120.

8526 Science Fiction II
Same as 45.120.

8516 African American Novel
Same as 45.120.

8516 African American Novel I
Same as 45.120.

Drama

8517 Shakespeare
Same as 45.120.

8517 Selected Dramatists
Same as 45.120.

8517 Medieval Drama
Same as 45.120.

8517 English Renaissance Drama
Same as 45.120.

8517 Restorative Drama
Same as 45.120.

8517 Modern Drama: Theatres in Rome
Same as 45.120.

8517 Contemporary Drama II
Same as 45.120.

8517 African American Drama
Same as 45.120.

8517 Shakespeare: Selected Plays
Same as 45.120.

8517 Studies in Drama
Same as 45.120.

8517 Studies in Modern Drama
Same as 45.120.

8517 American Drama Since 1945
Same as 45.120.

8517 Non-Fiction Prose
Same as 45.165.

8517 Biography and Autobiography
Same as 45.165.

8517 Survey of Non-Fiction Prose
Same as 45.165.

8517 Autobiography and American Culture
Same as 45.165.

8530 Selected Non-Fiction Authors
Same as 45.165.

8530 Selected American Authors
Same as 45.165.

8530 Theme Studies
Same as 45.165.

8530 Selected Themes in Literary Works
Same as 45.165.

8517 Literature of Peace and War
Same as 45.165.

8517 Themes in Modern Literature by Women
Same as 45.165.

8517 Interdisciplinary Literature
Same as 45.165.

8517 Literature and Anthropology
Same as 45.165.

8517 Literature and the Arts
Same as 45.165.

8517 Literature and the Film
Same as 45.165.

8512 Literature and Science
Same as 45.165.

8512 Literature and Psychology
Same as 45.165.

8512 Literature and Science
Same as 45.165.

8512 Literature and the Arts
Same as 45.165.

8512 Literature and Society
Same as 45.165.

8512 Literature and Music
Same as 45.165.

8512 Editing, Printing, and Design
Same as 45.165.

8512 The Hand-Printed Book: Problems in Design
Same as 45.165.

8512 Medieval Manuscripts and Handwriting
Same as 45.165.

8512 History of the Book
Same as 45.165.

8512 Visiting Writers
Same as 45.165.

8512 Professional Writing
Same as 45.165.

8512 Independent Study
Same as 45.165.

8512 Undergraduate Honours Project
Same as 45.165.

8512 Special Project for Undergraduates
Same as 45.165.

For Graduates

8512 Introductory
Same as 45.165.

8512 Advanced Bibliography and Textual Criticism
Same as 45.165.

8512 Medieval Languages and Literatures
Same as 45.165.

8512 Old English
Same as 45.165.

8512 Middle English Language and Literature
Same as 45.165.

8512 Middle English
Same as 45.165.

8512 Critical Literature
Same as 45.165.

8512 Renaissance and Baroque
Same as 45.165.

8512 Old Norse
Same as 45.165.

8512 Medieval Thought
Same as 45.165.

8512 Early Renaissance Literature
Same as 45.165.

8512 Seventeenth-Century Literature
Same as 45.165.

8512 Restoration and Eighteenth-Century Literature
Same as 45.165.

8512 Eighteenth-Century Literature
Same as 45.165.

8512 Nineteenth-Century Literature
Same as 45.165.

8512 Early Victorian Literature
Same as 45.165.

8512 Late Victorian and Edwardian Literature
Same as 45.165.
students in the teacher education program, 30.1 instruction to American Politics.
Candidates for the B.S. degree in exercise science are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 413-414 and Principles of Animal Biology 27.2. The social sciences General Education Requirement should be satisfied by taking 31.9 Elementary Psychology.

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 a minimum of 60 semester hours of course work with a cumulative grade-point average of 3.5 or higher, attaining a cumulative grade-point average of 3.0 or higher for the following courses: 101, 102 or 103, 413, 414, 22M.16 or 22M.25, 21.1, 21.3.
Exercise science majors must complete the following core courses plus all courses in their elected specialization.

TP 143 Introduction to Statistical Methods 3 s.h.
22C.3 Introduction to Computing with FORTRAN 3 s.h.
29.12 Chemistry of Human Motion 3 s.h.
29.12 College Physics 4 s.h.
29.12 Principles of Animal Biology 5 s.h.
72.130 Human Physiology or 4 s.h.
72.140 Human Physiology or 4 s.h.
72.150 Intermediate Physiology 4 s.h.

The following courses should be completed prior to the senior year.
27.53 Human Anatomy 3 s.h.
27.131 Specialized Human Motion 4 s.h.
27.141 Exercise Physiology 3 s.h.
27.142 Exercise Physiology Laboratory 1 s.h.
27.150 Principles of Motor Learning and Control 4 s.h.
Course requirements for the sub-disciplines in Exercise Science are listed below.

Anatomy Specialization
27.153 Advanced Anatomy and Kinesiology 2 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.190 Neural Basis of Movement 3 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
27.112 Cell, Tissue, and Organ Biology 5 s.h.
27.235 Laboratory in Advanced Anatomy 6 s.h.
Preprofessional students should take the following in place of 27.235 Advanced Anatomy Laboratory:
37.183 Comparative Vertebrate Anatomy or 4 s.h.
37.190 Introductory Endocrinology or 2 s.h.
37.152 Endocrinology Laboratory 2 s.h.

Biomechanics Specialization
37.7 States 3 s.h.
22M.26 Calculus II or 4 s.h.
22M.36 Engineering Calculus II 4 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
37.190 Dynamic 3 s.h.
37.192 Mechanics of Deformable Bodies 3 s.h.

Exercise Physiology Specialization
4.123 Organic Chemistry I 3 s.h.
4.122 Organic Chemistry II 3 s.h.
27.190 Neuronal Basis of Movement 5 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
37.190 Introductory Endocrinology or 2 s.h.
37.152 Endocrinology Laboratory 2 s.h.
37.110 Biochemistry 3 s.h.

Neural Control Specialization
27.153 Advanced Anatomy and Kinesiology 3 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.190 Neural Basis of Movement 3 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
37.112 Cell, Tissue, and Organ Biology 3 s.h.
37.180 Introduction to the Neurosciences 5 s.h.
37.161 Neurophysiology 3 s.h.

Bachelor of Science in Physical Education with Teacher Certification
This degree requires the following courses in physical education.
28.19 Orientation to Physical Education and Dance 0-1 s.h.
27.11 Orientation to Physical Education 0 s.h.
27.50 First Aid and CPR 3 s.h.
37.40 Anatomy 3 s.h.
27.53 Human Anatomy 3 s.h.
27.170 Biomechanics of Physical Education 3 s.h.
27.130 Human Physiology 4 s.h.
27.105 Physical Education for Special Students 3 s.h.
28.120 Administration of Physical Education and Athletics 2 s.h.
27.103 Administration and Curriculum in Physical Education 3 s.h.
26.142 Contemporary Issues of Health Education 3 s.h.
27.109 Teaching Motor Skills 3 s.h.
28.184 Psycho-Social Dimensions of Sport 3 s.h.
27.119 Human Growth and Motor Development 2 s.h.
27.119 Human Growth and Motor Development 2 s.h.
27.119 Human Growth and Motor Development 2 s.h.
27.119 Human Growth and Motor Development 2 s.h.

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 teaching, 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.)

27.153 Advanced Anatomy and Kinesiology 2 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.190 Neural Basis of Movement 3 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
27.112 Cell, Tissue, and Organ Biology 5 s.h.
27.235 Laboratory in Advanced Anatomy 6 s.h.
Preprofessional students should take the following in place of 27.235 Advanced Anatomy Laboratory:
37.183 Comparative Vertebrate Anatomy or 4 s.h.
37.190 Introductory Endocrinology or 2 s.h.
37.152 Endocrinology Laboratory 2 s.h.

Biomechanics Specialization
37.7 States 3 s.h.
22M.26 Calculus II or 4 s.h.
22M.36 Engineering Calculus II 4 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
37.190 Dynamic 3 s.h.
37.192 Mechanics of Deformable Bodies 3 s.h.

Exercise Physiology Specialization
4.123 Organic Chemistry I 3 s.h.
4.122 Organic Chemistry II 3 s.h.
27.190 Neuronal Basis of Movement 5 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
37.190 Introductory Endocrinology or 2 s.h.
37.152 Endocrinology Laboratory 2 s.h.
37.110 Biochemistry 3 s.h.

Neural Control Specialization
27.153 Advanced Anatomy and Kinesiology 3 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.190 Neural Basis of Movement 3 s.h.
27.196 Exercise Science Senior Seminar 2 s.h.
37.112 Cell, Tissue, and Organ Biology 3 s.h.
37.180 Introduction to the Neurosciences 5 s.h.
37.161 Neurophysiology 3 s.h.

Bachelor of Science in Physical Education with Teacher Certification
This degree requires the following courses in physical education.
28.19 Orientation to Physical Education and Dance 0-1 s.h.
27.11 Orientation to Physical Education 0 s.h.
27.50 First Aid and CPR 3 s.h.
37.40 Anatomy 3 s.h.
27.53 Human Anatomy 3 s.h.
27.170 Biomechanics of Physical Education 3 s.h.
27.130 Human Physiology 4 s.h.
27.105 Physical Education for Special Students 3 s.h.
28.120 Administration of Physical Education and Athletics 2 s.h.
27.103 Administration and Curriculum in Physical Education 3 s.h.
26.142 Contemporary Issues of Health Education 3 s.h.
27.109 Teaching Motor Skills 3 s.h.
28.184 Psycho-Social Dimensions of Sport 3 s.h.
27.119 Human Growth and Motor Development 2 s.h.
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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 teaching, 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.)

27.153 Advanced Anatomy and Kinesiology 2 s.h.
Students are admitted to the program and begin clinical experience as juniors. Before being considered for admission, students must complete a college mathematics course, be certified in First Aid and CPR, and complete the following courses:

2572 Human Anatomy 3 s.h.
311 Elementary Psychology 3 s.h.
2710 Natural Sciences and Motor Development 2 s.h.
2715 Basic Athletic Training 3 s.h.
453 Principles of Chemistry I 3 s.h.
418 Principles of Chemistry Laboratory I 2 s.h.
298 Basic Physics 4 s.h.
311 Introductory Animal Biology 4 s.h.

Program requirements include:

TC109 Counseling for Related Professions 3 s.h.
27247 Medical Aspects of Disability 3 s.h.
1741 Food, Nutrition, and You 3 s.h.
63101 Dynamics of Health 3 s.h.
28142 Contemporary Issues in Health Education 3 s.h.
71120 Drugs: Their Nature, Action, and Use 2 s.h.
72320 Human Physiology 4 s.h.
27140 Exercise Physiology for Practitioners 3 s.h.
27117 Teaching Motor Skills I 3 s.h.
28103 Psychology of Coaching 2 s.h.
27157 Biomechanics of Physical Education 3 s.h.
27151 Medical Supervision of Athletics 3 s.h.
27142 Clinical Sciences in Athletic Training I 3 s.h.
27140 Clinical Sciences in Athletic Training II 3 s.h.
27144 Seminar in Athletic Training 8 s.h.
27250 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:

27103 Administration and Curriculum in Physical Education 3 s.h.
72320 Human Growth and Motor Development 2 s.h.
27157 Biomechanics of Physical Education 3 s.h.
27117 Teaching Motor Skills I 3 s.h.
27140 Exercise Physiology for Practitioners 3 s.h.

Students may elect additional semester hours from the following to complete minor requirements:

27137 Human Anatomy 3 s.h.
28103 Psycho-Social Dimensions of Sport 3 s.h.
27157 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.

27553 Human Anatomy 3 s.h.
28103 Anatomy 3 s.h.
27157 First Aid and CPR 2 s.h.
27157 Basic Athletic Training 2 s.h.
27117 Growth and Motor Development 2 s.h.

Business and Critical Thinking

Students electing the physical education degree program with business emphasis must complete the core requirements in physical education, an internship, and the following courses:

1741 Food, Nutrition, and You 3 s.h.
27140 Exercise Physiology for Practitioners 3 s.h.
2484 Fitness for Adults 2 s.h.
28142 Contemporary Issues in Health Education 3 s.h.
71120 Drugs: Their Nature, Action, and Use 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 intrascholastic and interscholastic athletics. The program focuses on problems associated with teaching and coaching in public schools and community colleges.

The following undergraduate core course work is required background for the nonthesis M.A. program in physical education:

Human anatomy 2 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.
Practice teaching (or equivalent) 3 s.h.
Teaching activities in physical education 4 s.h.
Coaching of sports teams 1 s.h.
Electives in physical education and related areas 11 s.h.
Total 30 s.h.

For the M.A. degree without thesis, students must complete a minimum of 30 s.h. or at least 24 of which must be in physical education, including 27.201 Normal Science Seminar and at least one course from each of these three groups:

- 27.105 Physical Education for Special Students 3 s.h.
- 27.127 Measurement and Evaluation in Physical Education 3 s.h.
- 27.242 Supervision of Physical Education 3 s.h.
- 27.237 Public School Curriculum in Physical Education 2-3 s.h.
- 27.451 The Qualitative Analysis of Human Motion 3 s.h.
- 27.140 Exercise Physiology for Practitioners 3 s.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 is also designed for advanced preparation for those who are teaching under the guidance of the thesis mentor and for under the supervision of the thesis mentor. 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 or two 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, physiology, or psychology are required in some areas of specialization. These courses must be approved by the advisor and chosen by the candidate, and by the M.A. advisor.

The following courses are required for the M.A. degree with thesis:

- Two courses outside the area of specialization, from the following:
  - 27.141 Exercise Physiology 3 s.h.
  - 27.142 Exercise Physiology Laboratory 1 s.h.
  - 27.155 Advanced Anatomy and Kinesiology 2 s.h.
  - 27.157 Biomechanics of Human Motion 4 s.h.
  - 27.205 Adapted Physical Education: Special Topics and Research 3-4 s.h.
  - 27.242 Supervision of Physical Education 3 s.h.
  - 27.267 Advanced Measurement and Evaluation in Physical Education 3 s.h.
  - 27.337 Seminar: Research Models and Theory in Physical Education 3 s.h.
  - 27.491 Seminar in Scientific Writing 3 s.h.

These courses must be approved by the advisor and chosen by the candidate, and by the M.A. advisor. A minimum of 27 s.h. of these courses must be taken.

### 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 a depth of knowledge in at least one area of specialization in physical education.

The specialization offered in physical education include adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor control, and athletics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provide 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 area are offered by departments other than the Department of Exercise Science and Physical Education. Participants 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 thesis.

In addition to writing a comprehensive examination in physical education, candidates specializing in exercise physiology write a comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biophysics in the College of Medicine. These candidates graduate with minors in physiology.

The Ph.D. core requirements include:

- 27-426 Selected Applications of Statistical Techniques 3 s.h.
- 27-427 Intermediate Statistical Methods 4 s.h.
- 63-161 Introduction to Biostatistics 3 s.h.
- 27-225 Introduction to Computing with FORTRAN 2 s.h.
- 27-248 Data Processing 3 s.h.
- 27-249 Introduction to Computing with FORTRAN 2 s.h.

Candidates must complete a minimum of 30 semester hours of required and elective courses in their specialization. The required courses by area specialization are:

### Adapted Physical Education

- 71-160 Exceptional Persons 3 s.h.
- 27-201 Research 3 s.h.
- 27-202 Adapted Physical Education: Special Topics and Research 3 s.h.
- 60-108 Human Anatomy 4 s.h.
- 60-109 Human Anatomy and Neuroneurology 4 s.h.

### Administration and Supervision in Physical Education

- 27-242 Supervision of Physical Education 3 s.h.
- 71-201 Foundations of School Administration 3 s.h.
- 27-202 Research 4 s.h.
- 27-205 Advanced Administration of Physical Education 3 s.h.
- 27-247 Advanced Administration and Athletics 3 s.h.

### Anatomoy

- 27-202 Laboratory in Advanced Anatomy 6 s.h.
- 60-108 Human Anatomy and Neuroneurology 4 s.h.
- 60-109 Human Anatomy and Neuroneurology 4 s.h.
- 27-203 Anatomoy in College Teaching 2 s.h.
- 27-204 Advanced Anatomy and Kinesiology 2 s.h.

### Kinesiology

- 27-245 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 99-110 Biochemistry 3 s.h.

### Biomechanics

- 57-15 Mechanics of Deformable Bodies 3 s.h.
- 57-20 Mechanics of Fluids and Transfer Processes 4 s.h.
- 57-21 Principles of Design 1 3 s.h.
- 57-33 Intermediate Dynamics 3 s.h.
- 60-106 Human Anatomy 4 s.h.
Facilities
The Recreation Building and Field House, provide excellent facilities for the physical education emphasis majors, the undergraduate and graduate instructional programs, and student participation in intramural sports, recreational activities, and sport clubs.
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
210.134 Exercise Physiology 6.0 s.h.
210.246 Exercise Physiology 6.0 s.h.
210.254 Exercise Physiology 6.0 s.h.
191.260 Special Studies 1.0 s.h.
192. Advanced Rock Climbing Trips 1.0 s.h.
192. Cross-Country Skiing 1.0 s.h.
192. Ski or Snowboarding 1.0 s.h.
192.101 Introduction to Physical Education 3.0 s.h.
210.211 Biomechanics of Human Motion 3.0 s.h.
210.190 Reading in Civil and Environmental Engineering 3.0 s.h.
210.190 Reading in Mechanical Engineering 3.0 s.h.
210.200 Neuroanatomical Examination 3.0 s.h.
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210.200 Neuroanatomical Examination 3.0 s.h.
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 Tracks

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 25 semester hours of credit in French, including:

9.105-106 Second-Year Composition and Conversation 8 s.h.
9.111-112 Third-Year Composition 6 s.h.
9.126 French Conversation: Third Level 2 s.h.
9.127 French Conversation: Fourth Level 2 s.h.
9.175 Advanced French Pronunciation 2 s.h.
9.125 French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least two of which must be above the 100 level), plus a 100:100-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 20 semester hours of credit in French, including:

9.105-106 Second-Year Composition and Conversation 8 s.h.
9.111 Third-Year Composition 3 s.h.
9.112 Third-Year Composition 3 s.h.

A minimum of four 100-level courses in civilization and three 100-level courses in literature, totaling 23 semester hours and including at least one course in literature above the 100 level.

Teaching Track

The teaching track requires 25 semester hours of credit in French, including:

9.105-106 Second-Year Composition and Conversation 8 s.h.
9.111-112 Third-Year Composition 6 s.h.
9.115 Advanced French Pronunciation 2 s.h.
9.126 French Conversation: Third Level 2 s.h.
9.130 French Conversation: 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 100 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:

9.105-106 Second-Year Composition and Conversation 8 s.h.
9.111-112 Third-Year Composition 6 s.h.
9.115 Business French 3 s.h.
9.120 French Conversation: Third Level 2 s.h.
9.126 French Conversation: Fourth Level 2 s.h.
9.130 Commercial and Technical Translation 3 s.h.
9.175 Translation Project Two courses each in French civilization and literature 12 s.h.

Electives recommended as adjunct are courses in French styntics and textual analysis, another language, economics, political science, and/or business administration.

Minor

The requirements for a minor in French are 15 semester hours, at least 12 of which must be taken at The University of Iowa in courses numbered 9.105 and above. Credits numbered in the 140s, 150-152, and 158 do not count toward the minor in French.

Bachelor of Arts in Italian

Requirements for the major in Italian include:

18.112-113 Intermediate Italian 6 s.h.
18.111-112 Advanced Composition and Conversation 7 s.h.
18.125-126 Introduction to Italian Literature 6 s.h.
18.155-156 Dante and His Times 6 s.h.
18.151 Literature of the Nineteenth Century 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 honours degree in Italian, the student must complete:

9.198 Honors Readings 3 s.h.
9.190 Honors Seminar 3 s.h.
An additional course in French literature, language, or civilization, numbered above 160 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 Universite Laval. 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'ete pour non-francais of the Universite Laval, 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 region 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; pass a written and oral examination. The program must include 9.175 Advanced French Pronunciation, 9.209 Advanced Grammar and Literature; 9.210 Advanced Styntics and 120 hours of French civilization, composition, and culture. With the permission of the departmental chair, the candidate may take up to 30 semester hours outside the department.

Master of Arts in French with Thesis

The candidate must earn a minimum of 30 semester hours of graduate credit; pass a written and oral examination. The program must include 9.175 Advanced French Pronunciation, 9.209 Advanced Grammar and Literature; 9.210 Advanced Styntics and 120 hours of French civilization, composition, and culture. With the permission of the departmental chair, the candidate may take up to 30 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 Syntax
9:310-14 French Civilization
9:310 Methods: Foreign Language
9:311 Language: Laboratory Equipment Procedures
9:125 Contemporary France
9:315 Advanced French Pronunciation
Candidates must pass a final written and oral examination.

Doctor of Philosophy

Requirements for the Ph.D. degree in French consist of at least six years of graduate study, 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 9 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 4 semester hours of credit in 9:277 Thesis.

Students working toward the doctorate 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 at the University of Iowa, or at 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 required by the School of Graduate College, the department requires that all applicants for admission to graduate programs in French submit scores from the GRE 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 150-199 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before registering for these courses.

Courses numbered 200-299 are given in English, but are directed 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 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.

Primary for Undergraduates

9:300 Cooperative Education Internship
9:300 Elementary French
For students who have no knowledge of French.
9:320 Elementary French
Preliminary, 9:111 or equivalent.

Primary for Undergraduates

9:300 Cooperative Education Internship
9:300 Elementary French
For students who have no knowledge of French.
9:320 Elementary French
Preliminary, 9:111 or equivalent.
Genetics

Claire Gaye Gustav

Degree offered: Ph.D.

Graduate Program

The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigations and intellectual interactions among students and faculty participants affiliated with several 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. All students enrolled in the program are required to take 99.130 Metabolism. 99-171 Cell and Molecular Genetics, and 99.215 Cellular and Molecular Genetics (seminar) (same as 215-1). Additional credits are required to earn at least 100 hours of credit in inculceral and microbial genetics, cell and developmental genetics, and quantitative and 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, virology, plant biotechnology, and developmental, cell, and population biology, all of which contribute significantly to the overall training program.

In addition to completing research and course work, students also must pass a comprehensive examination, usually within their first two years in the program.

Admission

The prospective doctoral student in genetics should have a strong undergraduate background in science, including courses in general biology, organic chemistry, introductory physics, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area may be admitted to the program for study during the first year of graduate study.

Admission to the program is based on assessment of the applicant's undergraduate academic record, examination (GRE) Aptitude Test (verbal, quantitative, and analytical), and letters of recommendation. 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 3.2 and 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. 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 $3,250 (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, fellowships, individual research grants, or other departmental 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 this catalog for information about these programs.

Courses

The following genetics courses are available to graduate students. Not all courses are offered every year.

99.130 Biochemistry of International Macromolecules 3 s.h.
99.223 Gene Expression 1-2 s.h.
215-1 Cell and Molecular Genetics 2 s.h.
215-2 Cell and Molecular Genetics 2 s.h.
51.170 Alcoholic Genetics 3 s.h.
51.175 Microbial Genetics Laboratory 2 s.h.
51.179 Comparative Microbial Genetics 3 s.h.
51.270 Topics in Molecular Biology 3 s.h.
51.281 Protein and Evolutionary Genetics 3 s.h.
51.285 Behavioral Genetics 3 s.h.
51.285 Quantitative Genetics 3 s.h.
51.287/487 Enzyme Molecular Biology 2 s.h.
51.290 Bacterial Genetics 4 s.h.
51.292/492/592 Molecular Genetics 2 s.h.
51.575 Topics in Evolutionary Genetics 1-2 s.h.
51.716 Topics in Enzyme Molecular Biology 2 s.h.
51.725 Genetics Seminar 0-2 s.h.

Same as 215-1, 4215, 99.215.
Geography
Chair: David R. Reynolds
Professor: John R. Parker, James B. Ludberg, Thomas D. Monahan, David B. McNulty, David B. Reynolds, Gerald Rudolph
Assistant professors: Colleen F. Kato, N. L. McNally
Associate professor: Ron D. Vought, Joel L. Flanders, K. Napapol, Garth A. Toler
Assistant professors: Marc F. Armstrong, Joyce Cooper
Visiting assistant professors: George P. Macias, Kari Smearer
Adjunct faculty: Susan Ciarvate, Marie P. Krygier, Susan Lawrence, Thomas G. Newton

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

Geography seeks to explain spatial organization and areal 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 computer office, requiring a broad base of knowledge from many related disciplines. It is also 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, the provision of services, and conflicts between nations are some of the issues that students work with 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 to understanding the behavior of individuals and of societies, 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, urban analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Course requirements in geography are commonly required of students preparing to teach at the 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 those majoring in elective courses as they relate to a liberal education; for students 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 35 semester hours of geography coursework, at least 15 of which must be at the 200 level. Many students find that they need more than the minimum requirements to master a specific subject.

All geography majors must complete:
- 44105: Spatial Organization
- 44150: 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
- 225:101 Biostatistics
- 225:102 Introduction to Social Geography
- 225:127 Applied Statistical Methods and Computation

Bachelor of Science students must take a computer programming course from one of the following:
- 225:101 Introduction to Computing with FORTRAN
- 225:121 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 441:1 Introduction to Human Geography and 441:3 Introduction to Physical Geography during their freshman or sophomore year.

- Take 441:10 Spatial Organization followed by 441:50 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 225:101 Calculus I or its equivalent in fulfillment of the mathematics requirement. Students equipped with these skills will have greater flexibility in further geography courses and many opportunities.

Courses for the Nonmajor
Students in the College of Liberal Arts or other schools or colleges of the University may find geography courses meaningful to their own program of study. The beginning-level courses 441:1 Introduction to Human Geography, 441:3 Introduction to Social Geography, 441:5 Contemporary Environmental Issues, and 441:9 Introduction to Economic Geography are available for general education credit in social science, and 442:1 Introduction to Physical Geography is available for general education credit in natural science. These courses serve as part of a liberal education.
Other courses also may be attractive as individual electives. These include 4413 Introduction to Political Geography. 4415 World Cities. 4416 Water in the Biosphere. 4418 Drainage Basin: Form and Process. 4419 The Changing World, and 4419 Energy in Contemporary Society. Students in related disciplines may take groups of courses leading in a minor in geography. Bachelor of General Studies students also may take a group of geography courses as part of their degree. The geography courses listed here, under the different programs for the major in geography, will serve as a guide to course selection. Additional information about a minor is available in the department office.

Environmental Studies
The undergraduate program in environmental studies is designed for students who have career expectations or personal interest in resource management or environmental protection, or who are interested in physical geography per se. The program provides a knowledge of physical processes in landform development, atmospheric conditions, hydrology, soil development, and biotic communities. It stresses the interrelationships among these processes and helps the student acquire knowledge necessary to assess the impact of human activities on the environment. Training in field observation, quantitative analysis, computer methods, and cartographic representation should be included in this concentration. The program also provides a sound foundation for graduate or professional level studies. This undergraduate program has been designed as an introduction to the graduate level resource program of the Department of Geography.

Students concentrating in environmental studies should take 4415 Introduction to Physical Geography and 4419 Contemporary Environmental Issues at the beginning of their program. Students are advised to complete additional geography courses from among the following:

4411 Introduction to Human Geography
4420 Introductions to Economic Geography
4410 Weather and Climate
4410 Natural Hazards
4412 Environmental Conservation in the United States
4413 Geography of Natural Resources
4415 Environmental Impact Analysis
4416 Water in the Biosphere
4418 Drainage Basin: Form and Process
4419 Water Resource Management
4410 Natural Hazards
4419 Energy in Contemporary Society

Also strongly recommended:
4405 Special Problems in Geographical Analysis
4410 Computer Methods in Geographical Analysis
4413 Geographical Information Systems
Under the direction of an adviser, students should select at least 12 semester hours of courses from one of the following clusters:

Physical Systems
12.5 Introduction to Geology
12.10 Introduction to Oceanography
12.10 Introduction to Remote Sensing
12.16 Hydrogeology and Groundwater Quality
12.11 Geomorphology
12.17 Environmental Geology

Environmental Science
12.12 Ecology and Evolution
20.5 Chemistry and Physics of the Environment
4413 Society and Environment
205.5 Plants and Human Affairs
210.0 Plant Diversity
211.1 Plant Ecology
211.6 Field Ecology
211.9 Plant-Animal Interactions
212.3 Population and Community Ecology
37.12 Topics in Ecology
37.16 Quantitative Field Ecology
37.19 Quantitative Methods in Ecology

Environmental Management
46.0 Principles of Microeconomics
46.2 Principles of Macroeconomics
46.0 Microeconomics
46.0 Macroeconomics
46.11 Economics of the Government Sector
46.12 Natural Resources in the World Economy: Content and Conflict
46.15 Environmental Economics
46.10 Administrative Management
46.11 Individual Behavior in Organizations
46.13 Design and Management of Organizations
46.10 Introduction to Planning and Policy Development
46.14 Introduction to Environmental Planning
52.04 Theories of Environmental Policy and Assessment

Urban and Regional Studies
The undergraduate program in urban and regional studies is designed for students who are preparing for positions in government and private business. Course in this area also are designed to provide a suitable background for graduate programs in geography or professional programs such as urban and regional planning, business administration, applied policy analysis, or regional science.

The course covers location theories and their applications to applied problems such as locating sites for development potential; finding the best locations for public and private facilities; developing plans for regional and community development; evaluating alternate plans for improving transport services in a region; and forecasting the populations of small areas. Methods for solving these applied problems are based on a thorough understanding of the processes of urban and regional development, the roles of individuals and institutions in affecting change, and the processes through which policy decisions are reached. Required skills are developed in quantitative analysis, cartography, development and management of geographical information systems, and computer methods. Opportunities for experience in working with real problems are included.

Students concentrating on urban and regional studies are advised to select at least 21 semester hours of courses from the following:

4411 Introduction to Human Geography
4413 Introduction to Physical Geography
4411 Introduction to Social Geography
4415 Introduction to Political Geography
4410 Introduction to Economic Geography
4415 World Cities
4412 Environmental Impact Analysis
4410 Location of Services
4413 Medical Geography
4413 Industrial Location
4413 Introduction to Transportation
4414 Methods of Transportation Analysis
4415 Urban Geography
4417 Economic Theory of Location
4419 Urban Problems
4412 Spatial Organization and Political Economy in the Third World
4410 Geography of the Newly Industrializing Countries
4410 Contemporary Europe: Interaction and Change
4417 Patterns of Urbanization and Development in Latin America
4415 Political Geography of Space
4417 Location Control

Also strongly recommended:
4410 Maps and Mapping
4410 Survey Methods in Geographical Analysis
4413 Geographic Information Systems
Under the direction of a major adviser, students should select courses in related disciplines from the following:

113.11 Urban Anthropology
114.18 Afro-American History 1914-Present
30.10 National Government and Politics
112.10 Introduction to Planning and Policy Development
112.15 Regional Development Policy and Planning
46.13 Health Economics
46.13 Regional and Urban Economics
46.17 Problems in Urban Economics
46.104 Marketing Research

International Development Studies
The concentration in international development studies is designed for students interested in the processes of economic, social, and political development, particularly as they affect the countries of the Third World. This concentration gives students a better understanding of regional and national development in international and cross-cultural perspective. Students who are interested in the problems of developing nations and who wish to examine competing theories of development intended to explain international and
region) inequalities will find this concentration helpful. Students concentrating on international development studies should select at least 21 semester hours of courses from the following:

441 Introduction to Human Geography
442 Introduction to Physical Geography
443 Introduction to Political Geography
445 Population Geography
446 Spatial Relations in the Economy
447 Spatial Organization and Political Economy in the Third World
448 Spatial Development of the Newly Industrializing Countries
449 The Changing World
450 Contemporary Europe: Interaction and Change
451 Patterns of Urbanization and Development in Latin America
452 Political Organization of Space
453 Locational Conflict
454 Earth in Contemporary Society

Also strongly recommended:
441 Theories and Methods
445 Computer Methods in Geographical Analysis
446 Geographic Information Systems

Under the direction of an advisor, students should select courses in related disciplines from the following:

340 Introduction to World Politics
341 Problem Solving in Industrial Societies
342 The Political Economy of the Third World
343 International Politics
344 Politics of War and Peace
6512 Political Economy of the Military-Industrial Complex
6519 Economic Development of Underdeveloped Areas
6510 Colonial Latin America
6511 Introduction to Modern Latin America
6512 Modern African History
6513 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 advisors. Such programs must include at least 15 semester hours of geography, at least 12 of which must be at the 400 level. They also must include the following courses:

4410 Spatial Organization
4450 Undergraduate Seminar for Geography Majors

and one of the following statistics courses:

222-253 Applied Statistical Methods and Computation
222-250 Biostatistics
222-252 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 12 semester hours in geography, 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 advisor, 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.

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 teaching, research, or a variety 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 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 a Master of Arts (M.A.) program in the following specialties: political geography, regional geography, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, physical planning, development planning in the Third World, water resources management, and transportation, as well as for those interested in pursuing the Ph.D.

Each program 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 concerns 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 may 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, and research methodology therefore are integral to the M.A. program. Students who wish to complete a subprogram may take an additional elective course that emphasizes the major subfield and must include in addition to their 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 400-level courses or above. In addition to fulfilling the course requirements in the department's five subprograms (see below), students must complete a research thesis or dissertation.

Complete at least one course in another subprogram from the following introductory graduate courses: 44125, 44126, 44134, 44115, 44175, or 44294; 4

Enroll in the department's general geographic conference (44150 Research Seminar: Staff) during each semester in residence.

Satisfy the department's B.S. degree requirements or their equivalents in
mathematics, statistics, and computer programming.

Concerns, 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 maximum of 6 semester hours of credit may be earned for thesis work. Students selecting the M.A. without a thesis must pass a written examination and, in most subprograms, an oral examination. The 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
66:203 Microeconomics I or
62:205 Microeconomics II
64:207 Urban Economics and Urban Spatial Structure
64:305 Methods of Regional Analysis: Regional Science
64:205 Advanced Location Theory
44:300 Research Seminar: Location Theory

Political Geography
44:175 Locational Conflict
66:203 Microeconomics I
44:208 Philosophy and Epistemology in Geography
44:207 Jurisdictional Organization/Public Service Provision
102:204 Collective Decision Making
102:212 Social Theory, Social Movements, and Public Policy
44:315 Research Seminar: Political Geography

Regional Development
44:198 Regional Development of Regional Development
44:199 Industrial Location and Regional Development in Latin America
44:204 Agrarian Change and Rural Development in the Third World
44:204 Geographic Perspectives on Development
44:304 Research Seminar: Regional Development

Highly recommended courses
44:285 Methods of Regional Analysis: Science
44:250 Regional Development Theory and Methods
30:350 Political Economy and Public Policy in Developing Countries

Transportation Systems Analysis
6:103 Statistical Methods in Econometrics
6:104 Methods of Quantitative Economics
6:303 Microeconomics I or
6:206 Microeconomics II

44:134 Methods of Transportation Analysis
44:236 Travel Demand Modeling
102:260 Transportation Policy and Planning
102:251 Problems in Transportation and Land Use
53:262 Urban Transportation Planning

"Course satisfies the M.A. and Ph.D. quantitative methods requirements.

Water Resources
44:128 Drainage Basin: Form and Process
44:126 Water in the Biosphere
44:125 Environmental Impact Analysis
3 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
44:220 Water Resources Management
44:399 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 is any of the social or environmental sciences and an interest in exploring the regional and spatial perspectives characterizing modern geography is an important part of the particular disciplinary orientation of the student’s baccalaureate degree. Depending on the strength and suitability of their prior training, however, students may be required to take courses that are prerequisites for courses in their selected subprograms. Credit received for such courses cannot be applied toward the 30 semester hours required for the M.A. Each of the M.A. subprograms is designed to be completed in four semesters. This means that the student typically will accumulate 48-50 semester hours of graduate credit in completing the M.A. Students are advised to use these additional hours to elect graduate courses in other subprograms in order to complete the M.A. requirements. Students are advised to design programs of study to their individual research interests.

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-to-five-year, post-baccalaureate program, the first two years of which are devoted to the department’s M.A. program. Students can enter the program with advanced standing corresponding to their previous graduate training equivalent to that in the department’s M.A. program. Students entering the program directly from the B.S. or B.A. must fulfill all departmental requirements for the M.A. except for the M.A. examination. In addition, students whose ultimate objective is the Ph.D. are required to complete at least 3 additional semester hours in graduate-level geography courses from those required or recommended for one of the department’s subprograms that is not the student’s general area of interest.

Complete at least one additional quantitative methods course (3 semester hours) in a field that is at a level above that required for the B.S. degree and chosen from a list of courses approved by the faculty (students in the Ph.D. program are advised to fulfill both the M.A. and Ph.D. quantitative methods requirements—a 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 directly involved in the research seminar satisfying the student’s M.A. requirement.

Register for the department’s colloquium series and the 50 research seminar: staff each semester that the student is in residence. Resident students can formally be admitted to candidacy for the Ph.D. by submitting 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 discipline on external theses or research papers completed elsewhere must complete the following: 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 fall semester for the student entering the program directly from the B.S. or B.A.), the student must be able to
submit a written report that includes an assessment of progress to date, an outline of the area of geography in which he or she intends to specialize, and a proposed plan of study for the remainder of his or her Ph.D. program. This report is prepared in consultation with the student’s Ph.D. advisor and other members of the faculty in the student’s general area. The plan of study is amended, as necessary, throughout the remainder of the student’s program.

The remainder of the Ph.D. program includes the completion of the student’s individual program of study designed to prepare him or her for a research career in a specific area of concentration. It consists of appropriate graduate courses, seminars, readings, and independent research in geography; courses in related disciplines; and courses that satisfy the foreign language requirements of the student program of study.

Prior to taking the comprehensive examination consisting of both written and oral components, the student must submit an “area review paper” to his or her Ph.D. advisor. This paper, which must be approved by the student’s Ph.D. advisor, consists of a critical review of research in the student’s area of concentration. As such, it is a culminating essay in the student’s program of study as well as a statement of future research directions. The comprehensive examination will cover both the student’s area of concentration and his or her more general field in the discipline.

After obtaining the approval of a dissertation advisor, the student must submit a dissertation proposal to his or her dissertation advisor and complete the examination in writing. The student must then complete a dissertation and a public defense before receiving the Ph.D. degree. Students are expected to serve as both classroom instructors (Teaching Assistant) and research assistants.

Admission

In addition to the regular rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the department considers the applicant’s undergraduate major. Candidates from other departments, especially of his or her Junior and Senior year, may request interviews with the Graduate Record Examination (GRE) Graduate Test; three letters of recommendation; and an essay in which the applicant sets forth the reasons for wanting to study geography at the University of Iowa.

An applicant with an undergraduate grade-point average between 2.3 and 2.75 who was admitted for the M.A. degree and must have an average of 2.75 or better have first two semesters of graduate work as approved by the department.

Students from foreign countries or from undergraduate institutions that evaluate students on a basis other than grade-point average will be considered according to academic standing in their respective institutions.

Financial Aid

A number of graduate assistantships as teaching or research assistants are available. Awardees are chosen on the basis of their academic record and professional promise.

Facilities

The department helps a laboratory for computer cartography and spatial analysis equipped with IBM PCs, Geometric and Geol- Pen display systems, an HP 7475 5.75:38 plotter, and two remote printers. The PCs and other equipment are in the department, which is the University’s SYSTRE broadcast communication network, which provides high-speed access to graphics, data management, and analysis software on University IBM, PRIME, and VAX computer systems. Facilities in the computer cartography/survey laboratory are expected to enhance the acquisition of DRAWS microcomputer-based software for image processing and geographic information handling. Students also have access to a University computing cluster that contains IBM PCs, terminals, a printer, and a plotter and is located in the department’s classroom at the departmental offices.

The facilities in the department include a digitalizing and a small laboratory.

The map collection in the Geography Library contains more than 150,500 maps, a total of 3,500 albums and reference to books, and about 100,000 aerial photographs, primarily of Iowa. The library is a free library for maps of the United States in the University Map Collection. Formerly the Army Map Service.

The Geography Library contains approximately 70,000 maps, including both geographic and maps of large urban centers, and aerial photographs for use by students in laboratory exercises.

Courses

Most courses open to undergraduate students may be taken in any order or simultaneously. All students below the 100 level are open to freshmen: 441, 441, 441B, and 446 also satisfy the General Education Requirement in social sciences; and 441 satisfies the General Education Requirement in natural science.

Primarily for Undergraduates

6198 Cooperative Cartography Teaching Assignment 0 a.b.

411 Introduction to Human Geography 4 a.b.

411C Introduction to Modern and Historical Geography 6 a.b.

412 Introduction to Geographical Analysis 3 a.b.

412 Introduction to Political Geography 3 a.b.

413 Introduction to Physical Geography 3 a.b.

414 Introduction to Social Geography 3 a.b.

415 Introduction to Urban Geography 3 a.b.

415 Geography of the Near East 3 a.b.

416 Introduction to Economic Geography 3 a.b.

416 Introduction to Hydrology 3 a.b.

416A Introduction to Urban Geography 3 a.b.

416B Introduction to Urban Geography 3 a.b.

416C Introduction to Urban Geography 3 a.b.

416D Introduction to Urban Geography 3 a.b.

417 Introduction to Economic Geography 3 a.b.

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The program places greater stress on the basic aspects of geology than on the engineering or agricultural phases of the discipline. The department specializes in relating scientific thought to the study of the earth. Its resources include a major paleontology facility (vertebrate, invertebrate, paleoecology), a sedimentary-facies lab, and 18 sedimentary-facies laboratories. Additional mineralogy equipment is available in the science building and elsewhere. The department also maintains a suite at the Illinois state museum, a collection of paleontology and geology of the state. A general background in geology and allied fields is also required in courses such as conservation and environmental problems. Course requirements for the B.S. in geology:

- Geology 101-102
- Evolution of the Earth 4 s.h.
- 102-103
- Introduction to the Earth Sciences 4 s.h.
- 102-103
- Principles of Geology 4 s.h.
- Field Trip (two sections) 4 s.h.
- Total 16 s.h.

The student is required to substitute 12.23 Earth History and Resources and 12.24 Introduction to Cosmological Geology for 12.25 Introduction to Geology. Geology electives 12 s.h.

The B.S. 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 are arranged, typically with chemistry, physics, ecology, and anthropology.

Original Research
A junior or senior who is ready to pursue original research for credit in geology may write a faculty member or graduate student with current research projects, or may initiate a small-scale project involving the coordination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate class time and individually produced term reports that subsequently were published.

Honor's A degree "with honors" in geology is offered. Students for the honors degree must elect a senior thesis.

Graduate Programs
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 professional careers 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.

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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 20- semester-hour minimum required for the degree program.

**Master of Science with Thesis**

Students are required 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 five students to pursue the M.S. without thesis. The program requires that applicants have approximately three months experience working under the supervision of a professional geologist, or equivalent experience in some phase of geological activity. The student should receive prior faculty permission to apply 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 38 semester hours of graduate course work, of which at least 8 semester hours must be earned in other departments in the University. The faculty also may require that students submit a formal independent report dealing with an appropriate subject or project. Credit may be granted for this report.

The final examination consists of course 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, this M.A.T. degree requires at least 20 semester hours of graduate study in professional education and at least 18 semester hours of graduate course work in earth science.

**Doctor of Philosophy**

The Ph.D. degree in geology requires at least 72 semester hours of graduate course work, 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, proficiency by satisfactory completion of a two-year sequence of French, German, and Russian meet departmental language requirements; Spanish and computer science are available in certain other areas. In exceptional circumstances the faculty may approve other languages or tool areas. Courses in related disciplines such as botany, chemistry, physics, and biology are not required as satisfying tool requirements, although they may provide indispensable background for geological specialization areas.

Course work taken to satisfy language and tool requirements may not be applied to credit requirements for the degree. The following are the minimum requirements:

Satisfaction of course requirements for the M.S. 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 course work, exclusive of credits for dissertation research and beyond course 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**

**Determination of mineralogy**

**Crystal chemistry and mineral chemistry**

**Igneous and metamorphic petrology**

**Igneous petrology**

**Metamorphic petrology**

**Aquifer geochemistry and thermodynamics**

**Structural geology**

**Geostatistics**

**Structural analysis**

**Remote sensing**

**Geophysics**

**Exploration geophysics**

**Solid-earth geophysics**

**Rock properties**

**Stratigraphy**

**Physical stratigraphy**

**Biotrueprospects**

**Depositional environments**

**Sedimentary petrology**

**Sedimentation**

**Sandstone and carbonate petrology**

**Physical stratigraphy**

**Pleistocene studies**

**Pleistocene paleoecology**

**Quaternary geology**

**Paleontology**

**Paleobotany**

**Paleoecology**

**Biostratigraphy**

**General geochronology**

**Glacial and Pleistocene**

**Remote sensing**

**Environmental geology**

**Hydrogeology**

**Remote sensing**

**Engineering geology**

**Other minor subjects**

**Botany**

**Biology**

**Chemistry**

**Physique**

**Materials engineering**

**Geology**
12.164 Historical Geography

12.168 Historical Geography of North America

12.184 Historical Geography of South America

12.186 Historical Geography of the Americas

12.188 Historical Geography of Europe

12.190 Historical Geography of Asia

12.192 Historical Geography of Africa

12.200 Historical Geography of the Middle East

12.202 Historical Geography of the Indian Ocean Basin

12.210 Historical Geography of the Pacific

12.212 Historical Geography of the Arctic

12.214 Historical Geography of the Polar Regions

12.216 Historical Geography of the Antarctic

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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 a major in German with no previous experience with the German language.

Basic Program
1331 Elementary German 1 4 s.h.
1332 Elementary German II 4 s.h.
1333 Intermediate German I 3 s.h.
1334 Intermediate German II 3 s.h.

The basic program also may be satisfied by various combinations of courses from the following: 1333, 1334, 1325, 1326, and 1327. See the German Department undergraduate advisor for details.

Humanities Track
Third Year
13303 Introduction to Modern German Literature I 3 s.h.
13304 Introduction to Modern German Literature II 3 s.h.
13305 Composition and Conversation I 3 s.h.
13306 Composition and Conversation II 3 s.h.

Fourth Year
133105 German Cultural History 3 s.h.
133111 Survey of German Literature 3 s.h.
133112 Survey of German Literature 3 s.h.
133116 Advanced Composition and Conversation 3 s.h.

Applied German Track
Third Year
13303 Composition and Conversation I 3 s.h.
13304 Composition and Conversation II 3 s.h.
13306 Principles and Techniques of Translation 3 s.h.
13307 Translation: Prose and Colloquial 2.4 s.h.
13314 Business German 3 s.h.
13315 Contemporary German Civilization 3 s.h.

Fourth Year
133116 Advanced Composition and Conversation 3 s.h.
133114 Business German 3 or 4 s.h.
133115 Contemporary German Civilization 3 s.h.

The student should 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 12-credit minor 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 (13300 and above) at The University of Iowa. All courses numbered 100 and above count toward the minor except 13318, 13323, 13326, 13327, 13337, 13354, 13355, 13352, and 13362.

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:
13303 Introduction to Modern German Literature I 3 s.h.
13304 Introduction to Modern German Literature II 3 s.h.
13305 Composition and Conversation I 3 s.h.
13306 Composition and Conversation II 3 s.h.
13316 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 honor 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 required. A comprehensive oral examination completes 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 Regent 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. Benedikt, 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 short-term classes 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 session. Applicants should have a good background in 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 complete the doctorate study should select the master's degree program with thesis. The master's program requires a minimum of 36 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 to complete the principal course requirements 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 minor 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.
Global Studies/LIBERAL ARTS

economics, and political science have completed the certificate program, students complete all requirements for their departmental major as well as the requirements of the certificate program. Students who complete the requirements are awarded a certificate in global studies when they receive their bachelor's degree, and the completion of the program is noted on their transcript.

All courses counted in the certificate program, including B.G.S. courses, are required to complete two years of study of a foreign language or equivalent, and are encouraged to go beyond this minimal requirement.

The certificate program requires completion with at least a 2.0 grade-point average at 27 semester hours of approved courses as follows:

6.1 Global interdependence and Human Survival: An Introduction to Global Studies (3 s.h.)
10.180 Global Studies Seminar (3 s.h.)
One of the following courses (3 s.h.)
39.160 Introduction to World Politics
39.160 International Politics
39.165 American Foreign Policies
62.120 International Economic Problems
62.125 International Economics
64.132 United States in World Affairs
91.193 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 force for problem solving and defense on a continuum ranging from potential global 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
16.143 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 prospects for the developing countries. One of the following

113.151 Sociology of the Third World
42.129 Economic Development: Underdeveloped Areas
19.157 Third World Development Support

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.

44.174 Contemporary Environmental Issues
44.174 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 is, differing values complicate the process of people communicating about and arriving at agreed solutions to global problems and that without careful examination, it is likely to accept as obvious the perceptions, values, and beliefs of any one society or culture.

The goals of this program component are to highlight cross-cultural differences perceived 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 sensitivities required for dealing adequately with most 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.

113.1 Introduction to the Study of Culture and Society
113.10 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 major department do not count toward the minor.

Honors Major

The honors minor 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 from several 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 in 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.S. degree of the College of Liberal Arts and it is commonly required more work.

Core

All students will take the following core curriculum (27 s.h.)

47.1 Global Interdependence and Human Survival: An Introduction to Global Studies
47.180 Global Studies Seminar
Four courses chosen from the following: A course in international economics, e.g., 62.167 International Economic Problems or 62.125 International Economics
A course on the history of Europe during the Imperial Era, e.g., 16.134 Nineteenth Century Europe or 16.151 Modern Britain: 1760-1870
A course on the history of the United States as a world power, e.g., 15.152 The U.S. in World Affairs 1860-1975
39.160 Introduction to World Politics or 39.165 American Foreign Policies
20.112/116 (119) Introduction to International Law
113.10 Anthropology and Contemporary World Problems
Three of the following:
39.160 Politics of War and Peace or 16.145 War and Society
44.174 Contemporary Environmental Issues or 44.174 Introduction to the Global Environment
21.131 (24131) Sociology of the Third World or 30.150 Political Economy of the Third World or 19.157 Third World Development Support
Courses
41:1 Global Interdependence and Human Survival
3 s.h.
Introduction to problems of the Global Studies Program: basic information, methods of understanding, and strategies for addressing global issues. Meets twice a week for twelve weeks.
42:1 Macroeconomics: Africa
3 s.h.
Interdisciplinary survey of the political, economic, and social life of sub-Saharan Africa.
67:08 Peace Studies Seminar
3 s.h.
67:08 Studies in Global Studies
3 s.h.
Current events relating to each topic's major in a particular semester. May be repeated for credit at the discretion of the instructor.
67:08 Contemporary European News
2 s.h.
67:18 Greek Civilization
2 s.h.
Greek civilization viewed in an intellectual and political perspective, using foreign newspapers and periodicals.
67:08 Global Studies Seminar
3 s.h.
Discussion of global problems, with special emphasis on the formal or informal organization, the development of ideas and techniques, and the policies and personalities that influence global decisions. May be repeated for credit at the discretion of the instructor.
Greek
See "Classics."

History
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Ph.D., University of Wisconsin-Madison; A.B., University of Wisconsin-Milwaukee
Graduate study

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to satisfy General Education Requirements will not be counted toward the related-areas requirement.

Students majoring in History may waive 1 semester hour of the General Education Requirement in historical perspective. They may not receive credit toward that requirement by taking any of the following courses taught by members of the History faculty: 16:105-195, 16:115, 16:215, or 16:255. These courses may be included in the 24 semester hours of history required for the 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 16:51) for History Majors

40 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 five: 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 16:1, 16E:110, or 16E:111 (3 semester hours). This course also may be counted toward the related areas requirement in world history if that is one of the two areas chosen. Courses in economics, geography, political science, or sociology may be taken to satisfy the General Education Requirement in social science may be applied to the required hours in related areas, but no more than one quarter course may be applied to any one related area.

World History Concentration

Courses in non-U.S. History (including 16:51) for History Majors and one of 16E:110, 16E:117, or 16E:118

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 the following five: economics, geography, world history (non-U.S.), 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 one quarter 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 with an advisor in the college of education (see the "College of Education" section of the Catalog).

Honors

The honors major is for students of superior ability who wish to attract more academic attention to their studies. The honors program that enables them to pursue more specialized interests and areas of research or individual research. To undertake the honors major in history, the student must be admitted to the College of Liberal Arts Honors 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 17 semester hours in related courses (see general major in the catalog); 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.

Honors credit may be obtained in honors seminar, honors tutorial, or supervised research for the honors essay (the honors seminar fulfills the colloquium requirement of the general major).

The honors essay should be a 20-40 page paper based on original research in primary sources; a committee of three faculty members will be a director 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 programs at 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. Inquiries should be addressed to the departmental 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 20 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours in courses in the history department, including at least two seminars or one seminar and one readings course. Our seminar and be taken within the first two semesters of residence. Twelve semester hours must be in courses in the department, including the student's essay topic, and at least six semester hours must be in the second division, including either a seminar or a seminar in the second division.

The essay in the major division must be based on original research and should be approximately 10,000 to 12,000 words in length. The essay usually begins as a term paper for the seminar in the major division and is completed under the supervision, under the guidance of the supervisor, when the student is enrolled in 16:298 Individual Study Graduate. The finished product should include a clear statement of the conclusions in an learned journal, just as if it were dissertation later on to serve 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 dissertation in history. The basic course requirements are much the same as those for the Ph.D.-track M.A.'s. They are:

30 semester hours overall; 24 in history, 12 in one major division, including a minimum of just one nesting or seminar course. The two plans differ mainly in respect to concentration in field, whereas the Ph.D. track emphasizes the development of research skills. Students following 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 in history after completing their 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 writing, such as a major research paper or thesis. They must take a research seminar during their last semester at the University of Iowa. The candidate must earn at least 72 semester hours of credit, including credit
for work toward the master's degree. The 72 semester hours must include at least 32 semester hours (eight courses) in 200-level history courses, apart from thesis credit. At least 20 of these 32 hours must be completed before the student takes the comprehensive examination, and at least 20 of these 32 hours must be completed at The University of Iowa. Research seminars taken at the R.A. level may be counted toward this 20-hour requirement. The candidate also must earn 2 semester hours of credit in the philosophy of history, historiography, or methods of historical research. The department has no common language requirement for the Ph.D., but the supervisor may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. The candidate may not conflate the comprehensive examination with these requirements have been met.

The comprehensive written and oral examination covers four distinct fields, at least three of them in history. The fields in history must be chosen from at least two of these divisions:

- The Ancient World
- Medieval Europe
- Europe, including Great Britain, 1500 to 1815
- Europe, including Great Britain, 1515 to present
- Russia and the Soviet Union
- United States history
- Latin American history
- History of China
- History of Japan
- History of India
- Economic history

The committee may define and delimit the individual fields for examination. It may also set, separately for each field, the character of the written portion of the Comprehensive examination, which may take the form of a syllabus, a critical bibliography, a map or any other form of presentation. It is not necessary that each examinee devise a complete and comprehensive examination. The oral portion of the comprehensive examination will focus on issues and problems arising from the examination papers.

Admission

Applicants for admission to the graduate program in history must meet the general requirements for admission to the Graduate College: academic transcripts, letters of reference, and Graduate Record Examination (GRE) Aptitude Test scores. In addition, students must submit to the history department a writing sample, as a firm paper, seminar paper, or MLA thesis. These materials must be submitted by April 15 for admission to the fall semester, or by November 15 for spring semester. The application for graduate awards forms is separate, with a February 10 deadline. New students weighing for admission must submit the application for admission when they apply for 30, or earlier.

Guide to Graduate Study

Further information on graduate study is contained in the department's Guide to Graduate Study, which can be obtained upon request from the history department. The Guide is revised every spring to include the latest faculty listing. Courses to be offered the following year, and research interests of faculty members, as well as detailed regulations on study toward advanced degrees and other information of interest to prospective students.

Special Facilities

The University Libraries are strong in all aspects of U.S. history. The Main Library houses the Henry A. Wallace papers and related collections, as well as other unique materials in European history, special strengths are in French and English materials. The Iowa State Historical Department in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional valuable research materials.

Courses

Courses numbered 163 through 1615 are ordinarily taken by master's students to satisfy the General Education Requirements in historical perspectives. 160, 1651, and 1652 are open to freshmen, but 1501 and 1695-96 are not. Other courses numbered below 200 are open to freshmen who have already satisfied the General Education Requirement in historical perspectives. Most courses numbered below 200 are offered alternate semesters. Courses numbered 200 and above usually are offered as occasion demands.

16505 Geography and Environment 3 s.h.
16516 Western Cultures in 1700 3 s.h.
16520 Western Civilizations since 1700 3 s.h.
16525 Civilizations of Asia since 9375 3 s.h.
16555 Civilizations of Asia since 3500 3 s.h.
16512 Problems in Human History: Prehispanic Mexico 3 s.h.
16515 Prehistory of Human History: The Evolution of Human History 3 s.h.
16522 Problems in Human History: Conquest and Colonization, 1400-1800 3 s.h.
16523 Problems in Human History: Noreas, Politics and Society 3 s.h.
16524 Problems in History for the Cold War 3 s.h.
16525 College History for the Cold War 3 s.h.
16530 Archaeology and Material Culture 3 s.h.
16535 Historiography and Methodology 3 s.h.
16590 Historical Background of Contemporary Issues 3 s.h.
16591 Historical Background of Contemporary Issues 3 s.h.
16592 Historiography 3 s.h.
16593 Historiography 3 s.h.
16594 Historical Background for the Cold War 3 s.h.
16595 Historical Background for the Cold War 3 s.h.
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Home Economics

1611 Sociology: Eastern or Central Europe  arr.
1612 Readings: Eastern or Central Europe  arr.
1615 Sociology: Russian or Soviet History  arr.
1617 Readings: Soviet History  arr.
1618 Readings: Women in European History  arr.
1619 Social and Modern Social History  arr.
1671 Sociology: American Colonial History  arr.
1673 Readings: American Colonial History  arr.
1674 Sociology: The American Middle Period  arr.
1676 Readings: The American Middle Period  arr.
1678 Sociology: American Social History  arr.
1679 Readings: The United Age and Progressivism  arr.
1680 Sociology: Contemporary United States  arr.
1682 Readings: The Contemporary United States  arr.
1684 Readings in American Women's History  arr.
1685 Sociology: American Frontier  arr.
1687 Sociology: The American Frontier  arr.
1689 Readings in American Social History  arr.
1700 Sociology: American Religious Thought  arr.
1702 Sociology: American Postwar Society  arr.
1704 Sociology: American Foreign Relations  arr.
1706 Readings: American Foreign Relations  arr.
1720 Sociology: American Intellectual History  arr.
1731 Readings: American Intellectual History  arr.
1732 History of American Women  arr.
1736 Readings: American Intellectual History  arr.
1737 Latin American Studies Seminar: The Cuba Revolution  arr.
1751 Sociology: Modern Chinese History  arr.
1755 Readings in Chinese History  arr.
1756 Readings: Japanese History  arr.
1759 Readings in the History of India  arr.
1760 Readings in the History of India  arr.
1762 Readings in the History of India  arr.
1764 Individual Study: Graduate  arr.
1777 Thesis  arr.
1788 Philology of History  3 s.h.
1798 Historiography  3 s.h.

Chair: Carolyn W. Lara-Brawd
Professor: Margaret N. Kyes, Ronald Schnell
Professor emeritus: Margaret O. Opitnick, Hoyt W. Anderson
Associate professor: Richard K. Conn, J. Susan C. Conn, Susan C. Conn
Instructor: Carolyn W. Lara-Brawd, Larry C. Willkie
Instructor emeritus: Rachel L. Moyar
Instructor emeritus: Gladys G. Jenkins

Department of Home Economics

The department provides professional home economics to work with individuals, families, businesses, agencies, and organizations that provide goods, services, and programs that enhance the quality of life. Home economics courses also coordinate to the liberal education of nonmajors.

Through research, the department creates knowledge for and about individuals and families. Through community service and other activities, the department directly assists individuals and families with their needs and problems. Home economics is a career often a wide range of opportunities in business and industry as well as in private, community, and government agencies that provide services such as teaching, developing, merchandising, interior design, home, art, entertainment, hospitality, and family relations, and family life education.

The University of Iowa's home economics unit is accredited by the Council for Professional Development of the American Home Economics Association.

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.

Bachelor of Arts

All students majoring in home economics complete the following core:

179 Human Development and the Family  3 s.h.
1790 Food, Nutrition, and You  3 s.h.
1791 Design and the Environment  3 s.h.
1790 Textiles for Consumers  3 s.h.
1791 Management of Family Resources  3 s.h.
1790 Junior: Home Economics  2 s.h.
Selection of additional courses in home economics is based on interests and professional goals.

Apparel, Fiber Art, and Design

Option 1: Apparel and Textile Merchandising

Students interested in apparel and textile merchandising option develop competence in merchandising of apparel and textile products, evaluation of the quality of apparel and textile products, knowledge of the apparel needs of specific groups such as the handicapped or elderly, appreciation of general business principles, and use of the concept of a liberal education. In addition to the home economics core previously listed, the following courses are required:

1793 Introductory Clothing Construction  3 s.h.
1772 Apparel, Fashion, and Selection  3 s.h.
1773 Fitting Problems and Flat Pattern Design  3 s.h.
1775 Fashion Merchandising  3 s.h.
1780 Textile Technology and Analysis  3 s.h.
1795 Textile and Apparel Economics  3 s.h.

Accounting

63 Introduction to Economic Accounting  3 s.h.
64 Principles of Microeconomics  3 s.h.
65 Principles of Macroeconomics  3 s.h.
66 Administrative Management  3 s.h.
6410 Introduction to Marketing  3 s.h.
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.
4:112 Principles of Chemistry I 5 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:21 Organic Chemistry I 3 s.h.
98:110 Biochemistry 3 s.h.
4E:1 Principles of Microeconomics or 3-4 s.h.
4E:100 Administrative Management 3 s.h.
79:131 Educational Psychology or 3 s.h.
79:170 (79:187) Psychological Bases of Instructional Design 3 s.h.
34:1 Introduction to Sociology: Principles 3 s.h.
34:1 Elementary Psychology 3-4 s.h.
61:157 General Microbiology 5 s.h.
72:130 Human Physiology 4 s.h.
113:3 Introduction to the Study of Culture and Society 4 s.h.

Elections should be selected, according to the student's professional objective, from the natural sciences, business administration, psychology, computer science, statistics, education, home economics, journalism and mass communication, instructional design and technology, counseling, social work, anthropology, sociology, or physical education.

This option fulfills minimum academic requirements of the American Dietetic Association. All students applying for a postbaccalaureate internship should have their programs complete by the end of the senior year.

Option 4: Family Studies

Students who want specialized training in individual and family life span perspectives, child development and parent-child relations, adolescence in a family context, marital relationships, aging studies, and financial management should select this option. This option prepares students for careers with 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 economics core listed previously:

17:10 Growth and Development of the Young Child 3 s.h.
17:104 Adolescence and the Family 3 s.h.
17:105 Basic Aspects of Aging 3 s.h.
17:112 Personal Financial Management 3 s.h.
17:1123 Marital and Family Interaction 3 s.h.
17:114 Parent-Child Relationships 3 s.h.
17:122 Materials and Methods in Family Life Education 3 s.h.
17:900 Cooperative Education 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.
34:5 The Family in Various Societies 3 s.h.
or
46:1 American Family 3 s.h.
4E:3 Principles of Microeconomics or 3-4 s.h.
4E:3 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 or 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:

4:1-4 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:3-2 Basic Algebra 3 and Basic Geometry or high school equivalent 6 s.h.
22M:19 Elementary Functions or high school equivalent 3-4 s.h.
22K:2 Calculus I 4 s.h.
29:1-22 College Physics 8 s.h.
4:130 Physical Chemistry for the Life Sciences 8 s.h.
99:140 Experimental Biochemistry 4 s.h.

For this option, enrollment in 99:120 and 99:130 is recommended instead of 99:110.

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 register for 15:000 Cooperative Education Internship at the time of their work experience and for 17:150 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 12 semester hours competed in home economics. Honors work consists of 17:399 Honors Seminar; Home Economics and 17:192 Honors Problems: Home Economics, in which students do creative work or a research project. A written report or honors thesis and oral examinations are required.

In addition, students may contract with an instructor to receive honors credit for any 100-level-or-above home economics course, 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 or 7.5 credits. The courses taken in residence at The University of Iowa, 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 obtain 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 2.0, 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 unusually strong background in their subject area may need to take additional coursework and should anticipate extending the minimum hours specified for the degree. Students who lack required background courses will be required to complete these courses early in their programs, and such coursework 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 supposes work must have broad 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 either HED 701 Research Methods and Philosophy of Home Economics and a minimum of 12 semester hours of 700-level Research Methods and/or 17200 Form and Structure in Art. Those in the thesis track also complete 17200 Research Problems and 17200 Advanced Studio Problems and 17200 Thesis. Those in the non-thesis track also complete 17200 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 majors may be planned as a specialized program, a liberal arts 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 intended 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:

17200 Readings in Apparel, Fiber Art, Design 2-3 s.h.
One of the following:
17250 Advanced Problems in Interior Design 3 s.h.
17260 Graduate Workshop in Fiber Art 3 s.h.
17282 Experiential Textiles 2-3 s.h.
One of the following:
17150 Survey of Historic Interiors 3 s.h.
17156 Survey of Modern Interiors 3 s.h.
17162 Weaving 3 s.h.
17166 Housing: Social and Psychological Aspects 3 s.h.
17183 Textile and Apparel Economics 3 s.h.
17185 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 anthropology, art, art therapy, business administration, chemistry, classics, education, history, international relations, philosophy, psychology, radio and television, sociology, speech, theater 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, nutrition, food service systems, general and 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 nutritionist, dietitian, nutrition research specialist, 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:
17211 Individual and Family Development: Life Span 3 s.h.
17212 Theory and Research in Family Studies 3 s.h.
17215 Seminar: Family and Consumer Studies 3-6 s.h.
17223 Seminar: Home Economics Education 3 s.h.
17225 Seminar: Food and Nutrition 3-6 s.h.
17242 Seminar: Family Science 3-6 s.h.
17245 Seminar: Educational Strategies in Family Science 3 s.h.
17246 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, psychology, 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 completed core professional education courses. The program is nonthesis and requires writing 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, 10119 Human Relations for the Classroom Teacher, and two courses in each of the following housing and interior design, family development, food and nutrition, and home management, and textiles and clothing.

Other courses required for the M.A.T. program are:
A limited number of assistantships are available to graduate students.

Courses

Primarily for Undergraduates

17-121: Cooperative Education Internship 1-3 h.
17-123: Human Development and the Family 3 h.
17-124: Money Management 3 h.
17-125: Market Research 3 h.
17-128: Nutrition and Food 3 h.
17-129: Growth and Development of the Young Child 3 h.
17-130: Personal Finance 3 h.
17-131: Introductory Food Study 2 h.
17-132: Food, Nutrition, and Body Composition 3 h.
17-133: Food, Nutrition, and the Family 3 h.
17-135: Introduction to Dietetics 2 h.
17-136: Food, Nutrition, and Health 3 h.
17-137: Food, Nutrition, and the Community 3 h.
17-138: Food, Nutrition, and the Workplace 3 h.
17-140: Food, Nutrition, and the Community 3 h.
17-141: Food, Nutrition, and the Workplace 3 h.
17-143: Food, Nutrition, and the Community 3 h.
17-144: Food, Nutrition, and the Workplace 3 h.
17-146: Food, Nutrition, and the Community 3 h.
17-147: Food, Nutrition, and the Workplace 3 h.
17-149: Food, Nutrition, and the Community 3 h.
17-150: Food, Nutrition, and the Workplace 3 h.
17-152: Food, Nutrition, and the Community 3 h.
17-153: Food, Nutrition, and the Workplace 3 h.
17-155: Food, Nutrition, and the Community 3 h.
17-156: Food, Nutrition, and the Workplace 3 h.
17-158: Food, Nutrition, and the Community 3 h.
17-159: Food, Nutrition, and the Workplace 3 h.
17-161: Food, Nutrition, and the Community 3 h.
17-162: Food, Nutrition, and the Workplace 3 h.
17-164: Food, Nutrition, and the Community 3 h.
17-165: Food, Nutrition, and the Workplace 3 h.
17-166: Food, Nutrition, and the Environment 3 h.
17-167: Food, Nutrition, and the Community 3 h.
17-168: Food, Nutrition, and the Workplace 3 h.
17-170: Food, Nutrition, and the Community 3 h.
17-171: Food, Nutrition, and the Workplace 3 h.
17-173: Food, Nutrition, and the Community 3 h.
17-174: Food, Nutrition, and the Workplace 3 h.
17-175: Food, Nutrition, and the Environment 3 h.
17-176: Food, Nutrition, and the Community 3 h.
17-177: Food, Nutrition, and the Workplace 3 h.
17-179: Food, Nutrition, and the Community 3 h.
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17-224: Food, Nutrition, and the Community 3 h.
17-225: Food, Nutrition, and the Workplace 3 h.
17-227: Food, Nutrition, and the Community 3 h.
17-228: Food, Nutrition, and the Workplace 3 h.
17-230: Food, Nutrition, and the Community 3 h.
17-231: Food, Nutrition, and the Workplace 3 h.
17-233: Food, Nutrition, and the Community 3 h.
17-234: Food, Nutrition, and the Workplace 3 h.
17-236: Food, Nutrition, and the Community 3 h.
17-237: Food, Nutrition, and the Workplace 3 h.
17-238: Food, Nutrition, and the Environment 3 h.
17-239: Food, Nutrition, and the Community 3 h.
17-240: Food, Nutrition, and the Workplace 3 h.
17-242: Food, Nutrition, and the Community 3 h.
17-243: Food, Nutrition, and the Workplace 3 h.
17-244: Food, Nutrition, and the Environment 3 h.
17-245: Food, Nutrition, and the Community 3 h.
17-246: Food, Nutrition, and the Workplace 3 h.
17-248: Food, Nutrition, and the Community 3 h.
17-249: Food, Nutrition, and the Workplace 3 h.
17-251: Food, Nutrition, and the Community 3 h.
17-252: Food, Nutrition, and the Workplace 3 h.
17-254: Food, Nutrition, and the Community 3 h.
17-255: Food, Nutrition, and the Workplace 3 h.
17-256: Food, Nutrition, and the Environment 3 h.
17-257: Food, Nutrition, and the Community 3 h.
17-258: Food, Nutrition, and the Workplace 3 h.
17-260: Food, Nutrition, and the Community 3 h.
17-261: Food, Nutrition, and the Workplace 3 h.
Students working for advanced degrees will find excellent opportunities to develop projects at the laboratory. Teaching and research facilities include seven laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid
The University of Iowa has established several Thomas H. Marcheke Scholarships in Natural Science for undergraduate and graduate students attending the laboratory. The scholarships cover Iowa Lakeside Laboratory tuition costs. Scholarship applications close April 1.

Registration
Current or former students of The University of Iowa, the University of Northern Iowa, and Iowa State University should ask Dora Stearn for information. Students from other institutions must apply for admission to one of the three cooperating universities; each has a provisional admission policy for students who wish to register for summer work only.

Early registration is advisable. All applications should be submitted before May 1 for the following summer session.

Courses
Permits the instruction of required for all courses. Enrollment is limited to six students in each course. Classes meet all day, every day. Courses vary from year to year (see annual Iowa Lakeside Laboratory bulletin) the following are representative.

**II/III Field Natural History**
4.5 h.
Involves study of animals, plants, and their relationships in their natural environment. Includes field trips,read, and natural history.

**II/III Field Botany**
3.0 h.
Introduction to the natural world, basic principles of botany, and the role of plants in our environment. Emphasis is on identification of local plants and their role in the ecosystem. Students will participate in various activities related to the study of plants.

**II/III Aquatic Ecology**
3.0 h.
Local aquatic plants and animals, including algae, aquatic plants, and invertebrates. Students will participate in various activities related to the study of local aquatic ecosystems.

**II/III Aquatic Zoology**
3.0 h.
Local aquatic plants and animals, including algae, aquatic plants, and invertebrates. Students will participate in various activities related to the study of local aquatic ecosystems.

**II/III Aquatic Ecology Project**
3.0 h.
Individual project work.

**II/III Plant Taxonomy**
3.0 h.
Basic principles of classification and evolution of vascular plants, their anatomy, and the nature of the leaf, inflorescence, and groups project involved.

**II/III Biological Control of Insects and Symbiosis**
3.0 h.
Ecological principles and methods of biological control of insects and symbiosis.

**II/III Field Botany**
3.0 h.
Field studies of local plants and their role in the ecosystem. Students will participate in various activities related to the study of local plants.

**II/III Field Aquatic Ecology**
3.0 h.
Field studies of local aquatic plants and animals, including algae, aquatic plants, and invertebrates. Students will participate in various activities related to the study of local aquatic ecosystems.

**II/III Field Zoology**
3.0 h.
Field studies of local animals, including insects, birds, and mammals. Students will participate in various activities related to the study of local animals.

**II/III Field Botany**
3.0 h.
Field studies of local plants and their role in the ecosystem. Students will participate in various activities related to the study of local plants.

**II/III Field Aquatic Ecology**
3.0 h.
Field studies of local aquatic plants and animals, including algae, aquatic plants, and invertebrates. Students will participate in various activities related to the study of local aquatic ecosystems.

**II/III Field Zoology**
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Field studies of local animals, including insects, birds, and mammals. Students will participate in various activities related to the study of local animals.

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Field studies of local plants and their role in the ecosystem. Students will participate in various activities related to the study of local plants.

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3.0 h.
Field studies of local aquatic plants and animals, including algae, aquatic plants, and invertebrates. Students will participate in various activities related to the study of local aquatic ecosystems.

**II/III Field Zoology**
3.0 h.
Field studies of local animals, including insects, birds, and mammals. Students will participate in various activities related to the study of local animals.
Undergraduate Programs

The main objective of the Iowa undergraduate program is to prepare students for professional positions in journalism and for other careers in the broad field of mass communication. Such positions vary widely. Among them are newspaper reporting and editing, magazine writing and editing, broadcast journalism, public relations, corporate communication, book publishing, media graphics and design, advertising production, media research, and photography. The Iowa program emphasizes the basics of reporting and writing, but professional preparation also requires an introduction to and an understanding of theoretical concepts. All courses strive to integrate practice and theory. The program offers a wide variety of courses.

To preserve high quality of programs the School of Journalism and Mass Communication has a selective admissions program. Thus, students with a declared interest in journalism are classified as "premajors." For admission to full major status, students must fulfill the following pre-major requirements:

Rhetoric

19-10 Social Scientific Foundations of Communication

19-19 Cultural and Historical Foundations of Communication.

Students may apply for admission to full major status after they complete these requirements and are at least 55 semester hours (or will have that many at the end of the semester during which they apply for admission). Applications and information on deadlines are available at the School of Journalism and Mass Communication.

The major criterion for admission to major status is overall academic performance; work done at Iowa and work transferred to Iowa. Other criteria considered by the undergraduate admissions committee are performance in the required pre-major courses, a statement of purpose prepared by the student, and a statement on any extenuating circumstances. The goal of the program is to admit the most qualified applicants. The number of students accepted each semester depends on the number of students already in the program and available resources. A grade of D in any journalism course work completed after December 31, 1980 does not count toward fulfilling journalism major requirements.

To ensure that students have a strong liberal arts background to go with their professional preparation, the school limits students to 37 semester "hours" in the School of Journalism and Mass Communication. Students are required to take course work outside journalism in significant depth, including a concentration of at least 24 semester hours beyond the general education level in one area. To meet this requirement, journalism majors may complete the major requirements of another department, or create their own area of concentration by selecting related courses in several departments. Premajors are encouraged to consider a second major—which, depending on the outcome of the application for major status, could be a journalism major, or in place of the journalism major. This work outside journalism should be arranged in consultation with an advisor.

The Iowa program offers undergraduate majors a choice of three sequences of study: news-editorial, mass communication laboratory, and mass communication laboratory. In addition to the required pre-major courses 19-30 and 19-35, students in all sequences must fulfill the following school requirements:

19-100 Introduction to Journalism Writing 3 s.h.

19-102 Legal and Ethical Issues in Communication 3 s.h.

19-109 Contemporary Issues and Problems in Mass Communication 1 s.h. (to be taken in senior's final semester before graduation.)

After completing the 6 semester hours of pre-major courses (19-10, 19-13, 19-19, 19-30, and 19-35) students will take the 7 semester hours of school-required courses (19-100, 19-102, and 16-190), and courses required in the sequence of their choice. Electives also are available. Students must take at least 31 semester hours in journalism but not more than 37.

Mass Communication Laboratory Sequence

This sequence focuses on news reporting, writing, and editing. Students learn how to gather news and other information from sources and convert it into copy for newspapers and other media. Students also learn how to edit news stories and write headlines, edit pictures and graphics, and lay out pages for publication. The three courses in the sequence take the student through the basics of their craft. News stories, broadcast stories through the standard news story to the deeper and more artistic. Along with learning techniques, students are introduced to analytical-critical concepts of the principles and practices of the news profession through discussions and critiques of student work. The mass communication laboratory course may focus on such topics as public affairs, politics, courts, magazine writing, publication design, and editing. Career possibilities for students include work on daily and community newspapers, magazines, public relations publications, and other print media. The sequence is accredited by the Accrediting Council on Education in Journalism and Mass Communication (ACJMC). These are the required journalism courses:

Pre-major courses (19-10 and 16-190) 6 s.h.

School required courses (19-100, 19-102, and 16-190) 7 s.h.

19-120 News Reporting and Writing 3 s.h.

19-170 News-Editorial Laboratory (2 sections) 6 s.h.

19-170 Journalism electives 0 s.h.

Total 31 s.h.

Maximum journalism credits allowed toward the bachelor of arts degree is 40 s.h.
One production course, selected from:
19:122 Broadcast Journalism Workshop
19:131 Print/Visual Communication
19:141 Intro to Typographical
19:132 History of Video Production
19:171 Mass Communication Lab
Journalism electives
Total required
Maximum journalism credits allowed toward graduation: 37 s.h.

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)
School required courses (19:100)
19:150 Visual Communication
19:152 History of Mass Communication 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
19:161 Reportage and the American Media
19:112 Seminar in Mass Communication Research
19:111 Journalism electives
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 designated 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 designated by the student in consultation with his or her adviser.

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:
19:90 Social Scientific Foundations of Communication
19:91 Cultural and Historical Foundations of Communication
19:95 Media and Consumers

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 pre-majors. They will apply for major status after earning at least 50 credit hours (including course work 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 pre-major 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/or 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. Applicants should indicate the emphasis to which they are seeking admission.

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 1 s.h.
19:230 News Reporting and Writing 3 s.h.
(Does not count toward M.A. degree)
19:232 News Editing 3 s.h.
19:238 News Editorial Laboratory 3 s.h.
or
19:331 Mass Communication Laboratory 3 s.h.
(19:331 option intended for students with special interest in public relations or organizational communication)
Electives 18 s.h.
19:299 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.
19:299 Master’s Research 3 s.h.
Final examination, last period of enrollment

Students must complete a major professional project (19:299) under supervision of a faculty member during the last period of enrollment. Students select electives 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 individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. 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 or mass communication in and other departments 15 s.h.
19:299 Master’s Research 3 s.h.
Final examination, last period of enrollment

All students are expected to take course work 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 Geography 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 non-thesis and thesis tracks.

Non-thesis Track

The non-thesis track is for students who do not wish to engage in subsequent Ph.D. work. These students must, during the last period of their enrollment, complete a major professional project (19:299) under the supervision of a faculty member. Program requirements for the professional track include:

19:220 Master’s Seminar 1 s.h.
19:237 Third World Development Support 3 s.h.
19:238 Communication Systems 3 s.h.
19:231 Mass Communication Laboratory 3 s.h.
19:299 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 (19:299) under the supervision of a guidance committee consisting of one graduate faculty member. Program requirements for the philosophical track include:

19:220 Master’s Seminar 1 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.
19:242 Communication Research: Phenomenological Approaches 3 s.h.
19:243 Communication Research: Legal Issues Approaches 3 s.h.
19:299 Master’s Research (thesis) 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.

Students with no professional or academic experience in mass communication are encouraged to take the undergraduate foundation course 19:160 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 perspectives emphasize the structural and functional aspects of communication, and the conflict and interaction between mass communication and cultural institutions. The program is designed to prepare students for research and teaching careers in colleges and universities, as well as in governmental agencies and private enterprise.

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 interests. Students should be interested in the opportunity to join a small group of students working to understand mass communication in its cultural context. A more complete description of

Journalism

19:210 Master’s Seminar 1 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.
19:242 Communication Research: Phenomenological Approaches 3 s.h.
19:243 Communication Research: Legal Issues Approaches 3 s.h.
19:299 Master’s Research (thesis) 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.

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Doctor of Philosophy

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the graduate program is available from the School of Journalism and Mass Communication. Prospective students should ask for the Graduate Studies Handbook.

Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typographic, audio, video, typing, and print production, including video display terminals and modern typesetting equipment. Many students use the newsletters and other facilities of the award-winning Iowa State University of the West Liberty Student Newspapers. The Daily Iowan, housed in the Communications Center, special facilities within the Communications Center include the Leslie G. Moeller Seminar Room and the Moeller Special Presentation Rooms. The school has its own resource center and provides accommodations for offices of the Iowa State University Press Association and the Quill and Scroll Society. A display gallery is available for students and faculty photography and other projects.

Iowa Center for Communication Study

The center encourages and facilitates inquiry into communication problems by faculty members and students. It also publishes the newsletter Journal of Communication Inquiry, a student-edited publication that explores different approaches to communication theory and research.

Financial Aid

In addition to research and teaching assistantships for graduate students, more than $30,000 in scholarship and financial aid is available to both undergraduate and graduate students. The school also has a program offering modest financial support for student research projects. Interested persons should write to the school or eligibility information.

Professional Enrichment

Internships, Cooperative Education, Professional Experience

The school has a strong commitment to helping students find learning opportunities outside the classroom. Internships in journalism and public relations are available to students through the University of Iowa Cooperative Education Program. These experiences are selected and monitored to aid the student's professional growth. The school also works with the Business and Liberal Arts Placement Office to provide career guidance and placement. In addition to internships, student-operated and professional media provide opportunities for professional experience.

Special Activities

The school engages in a variety of special activities for the enrichment of students, faculty, and the entire campus. Many speakers visit campus every year as part of the John F. Kennedy Lectureship and the Leslie G. Moeller Lectureship Series. Campus organizations for students include Kappa Tau Alpha, National Association of Black Journalists (NABJ), Public Relations Student Society of America (PRSSA), Society of Professional Journalists, Sigma Delta Chi (SPJ-SOX), and Women in Communication Incorporated (WIC). Each year, the Leslie G. Moeller Chapter of Kappa Tau Alpha sponsors the election of an outstanding congratulator in the field of journalism to the School of Journalism and Mass Communication Hall of Fame.

Semester in London

Each spring semester, advanced undergraduates and M.A. professional students have an opportunity to study in England. The program involves a dozen students who carry a full load of courses, including some offered in conjunction with The City University of London. Courses of both a practical and theoretical nature are offered with courses in specialty reporting and the history of mass media available from The City University. In addition, internships may be arranged with London news media.

Courses

All courses listed as 100-level or above require at least junior standing or major status and/or consent of instructor.

1999 Journalism and Mass Communication

Cooperative Education Internship

This one-credit internship is a supervised work experience on a media-related project. The internship will be supervised by staff in the Communications Center and will be the responsibility of the Communications Center. The internship will be supervised by a Communications Center staff member.

1999 Introduction to Broadcasting and Film

Papercraft

For students with no previous experience, this course will introduce students to the techniques of creating and editing simple papercraft projects. The course will cover the basic principles of design and technique, as well as the use of tools and materials. The course will include hands-on projects and a final exhibition of student work.

1999 Introduction to Communication Skills 14 hours

These short courses examine development of a variety of advanced communication skills. These include audio, video, photography, and group discussion skills. The course will cover the techniques and methodologies used in these areas. The course will also include a final project in which students will demonstrate their ability to communicate effectively in a variety of situations.

1999 Newswriting and Editing for a Community Audience 3 hours

This course will introduce students to the principles and practices of newswriting and editing for a community audience. Students will learn the techniques and strategies used in writing news stories for community newspapers and other media outlets. The course will include hands-on writing exercises and a final project in which students will write and edit news stories for a community newspaper.

1999 Free-Lance Writing 3 hours

This course will introduce students to the principles and practices of free-lance writing. Students will learn the techniques and strategies used in writing articles for magazines, newspapers, and other media outlets. The course will include hands-on writing exercises and a final project in which students will write and edit articles for a magazine or newspaper.
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
113-115 Ethnography of South America 3 s.h.
113-115 Ethnology of Mesoamerica 3 s.h.
113-118 Social Anthropology of the Caribbean 3 s.h.
113-131 Latin American Economy and Society 3 s.h.
113-132 Latin American Studies Seminar 3 s.h.
113-103 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.
30:153 Inter-American Relations 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.
38:109 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
35:21 Contemporary Latin American Narrative (Taught in English) 3 s.h.
35:101 Contemporary Spanish American Fiction 3 s.h.
35:112 Spanish American Poetry 3 s.h.
35:113 Spanish American Drama 3 s.h.
35:134 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.

Courser
126:114 Contemporary Latin American News Colloquium 3 s.h.
Contemporary Latin American states as reflected in their relationship to the Church, the State, and the Americanization of society. Open to 35:126.

Library and Information Science

Director: Carl Ogden
Professor emeritus: Velma Jordan Oldham
Associate professors: Carl Ogden, James Rice
Associate professor emeritus: Lesa L. Nowak
Assistant professors: Olga Bierhaas, Terrence Brooks, B. Patrick Gandy, Gerald Hodges, Kathleen Teumer
Lecturers: Edith Bierhaas, Janet DeMar
Affiliated faculty: Kay Arvey, Dan M. Bents, John W. Fehlner, Daniel Visions
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 advancement 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; 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 dissemination of information);
Identify and use bibliographic techniques and sources of information in a broad range of media formats in 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 systems 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 teachers 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 one-year 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 adviser.
Required core courses (required of all M.A. candidates)
21:151 Reference
21:152 Description and Organization of Materials I
21:153 Foundations and Collection Development
21:201 Management of Libraries and Information Centers
21:246 Introduction to Information Science Electives

It is strongly recommended that the student's electives include a subjectography 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 courses offered in other cultural and intellectual support to preparation for librarianship, they cannot be chosen to warrant displacement of needed courses in a brief one-year program. Electives outside the department must be numbered and approved by the department's advisor. Only courses taken for graduate credit may be counted toward 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 the program with extensive coursework in library science. In either case, 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 nine semester 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 how many hours of 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 five summer sessions. Maximum graduate course load is 15 semester hours in regular semesters, 6 semester hours in summer sessions. The maximum course load may not be advisable for those with substantial early-fall 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 services, services, and organizational structures of public libraries makes the area of librarianship a challenging one.
A major concern of public librarians is to design innovation 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 necessary in these services.

Plan of Study
Required core courses
Suggested electives
21:03 Library Services to Adults
21:222 Multi-Media Concepts in Libraries
21:231 The Public Library
21:247 Information Storage and Retrieval
21:249 Research Methods
21:251 Advanced Reference
21:272 Description and Organization of Materials I
21:282 Practicum in Libraries
21:283 Practicum in Libraries
21:292 Bibliography

Courses relating to service to children and young adults:
21:121 Literature for Children I
21:124 History of Books for Young People
21:262 Literature and Storytelling for Children
21:193 Literature for Adolescents

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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 the 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 requirements for school library work. Since the requirements for Iowa endorsements are relatively comprehensive, students who wish to pursue school library media work but who do not plan on moving to 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 are suggested that will prepare them to work both in elementary and secondary situations. The School Library Media Center Practicum course must be 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
21:247 Information Storage and Retrieval
21:249 Research Methods
21:251 Advanced Reference
21:252 Description and Organization of Materials II
21:255 Government Publications
21:264 Medical Librarianship and Bibliography
21:265 Law Librarianship, Bibliography, and Research Techniques
21:282 Practicum in Libraries (offered in fall semesters only as required for an endorsement)

Iowa Community College Certification
(Required for students who wish to receive an endorsement.)

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 the 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 requirements for school library work. Since the requirements for Iowa endorsements are relatively comprehensive, students who wish to pursue school library media work but who do not plan on moving to 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 are suggested that will prepare them to work both in elementary and secondary situations. The School Library Media Center Practicum course must be 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
21:247 Information Storage and Retrieval
21:249 Research Methods
21:251 Advanced Reference
21:252 Description and Organization of Materials II
21:255 Government Publications
21:264 Medical Librarianship and Bibliography
21:265 Law Librarianship, Bibliography, and Research Techniques
21:282 Practicum in Libraries (offered in fall semesters only as required for an endorsement)

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 kindergartners through grade 12 (Iowa endorsement 11). Since these endorsements require that the teaching certificate, students must hold a valid Iowa teaching certificate to qualify for these endorsements.
and the other unit chosen. Up to 6 semester hours of this study 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 JD. In no case can a student receive two degrees with fewer than 60 semester hours of graduate work. All programs typically 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 Davroom
A media lab contains equipment and space for slide tape production, videocassette recording, super-8 film editing, filmstrip production, 16mm film previewing, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities
An online lab includes three CRT terminals, one teaching demonstration terminal, and a personal computer. This equipment provides local computing access to the University's Weeg Computing Center, and access to the University's network of databases and OCLC. In various courses, students learn to write programs, use online information systems, conduct database searches, recall and manipulate biographical 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 librarians reinforce and integrate classroom instruction and provides 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 4,900 volumes and 400 periodical titles related to the study or practice of library and information science. Currently contains AV equipment for viewing library materials. Tables, chairs, and easy chairs allow a 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 branch libraries. An average of 50,000 volumes is added annually. The serials collection is extensive, with more than 12,000 current subscriptions. The third floor of the Main Library houses the government publications, maps, 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 cluster of computer terminals linked to the Weeg Computing Center.

Other Libraries
Students have access to a variety of libraries through field trips, practice experiences, and personal use; the State Historical Society Library in Iowa City, the Iowa City and Cedar Rapids public and school libraries, the Carver, Cornell, and Grinnell college libraries, and the Herbert Hoover Presidential Library in West Branch. The Iowa City Public Library, located only four blocks from the Main Library, was one of the first public libraries in the nation to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources
Weeg Computing Center, located across the street from the Main Library, houses the Learning Resource Center of the College of Education and the Weeg Computing Center. The resource center consists of the Video Production and Computer Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab contains an extensive collection of books, audiovisual, and instructional materials for children in preschool through grade 12. It is especially valuable to students interested in school or public library work.

Weeg Computing Center provides instructional and research computing facilities and services for the University. All University students, staff, and faculty may use the center's computers for University-related research, preparation, and class work. Each graduate student is provided with a small budgeted 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 in a small number of students in the school allows faculty members to get to know students individually and to have an interest in their professional development. All courses to be applied to the 33-semester hour program must be approved by the advisor.

Student Activities
Students have a variety of activities available both in and outside of academic and professional work. Options include participation in classes and seminars, short courses, workshops, seminars, field trips, and occasional conferences. 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., Executive Committee of LISSO (ECL), serve 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 announcements, seminars on resume-writing and interviewing, and personal counseling. The University's Educational Placement Office maintains a weekly listing of job openings and provides a complete file service.

Iowa graduates find positions in all types of libraries. The placement distribution for the past three years was: public libraries 27 percent, school libraries 12 percent, academic libraries 24 percent, and special libraries 13 percent. Iowa graduates currently working in libraries in 44 states and nine foreign countries. Strong personal references, good communication skills, and geographic mobility are important factors in obtaining a position.

Admission
Scholastic requirements for admission to the M.A. program include:

- A baccalaureate degree from an accredited college or university, with a minimum grade-point average of 2.0 on a 4.0 scale, and at least 45 semester hours of study in the liberal arts and sciences.
- A combined verbal/quantitative score of 950 on the Graduate Record Examination (GRE) General Test.

Personal qualifications and aptitude for library work are assessed by means of reference letters of recommendation, and an interview with the school director, the director's assistant, and another member of the faculty. Alternate interviews are arranged when distance permits.
COURSES

21:600 Cooperative Education Internship 9.0 s.
21:612 Literature for Children I 3.0 s.
21:614 History of Books for Young People 3.0 s.
21:615 Theory and Practice of Library Services 3.0 s.
21:616 Literature and Storytelling for Children 3.0 s.
21:651 Research 1.0 s.
21:652 Reference 3.0 s.
21:653 Cataloging and Bibliographic Control 3.0 s.
21:654 Information Systems 3.0 s.
21:655 Copyright and Trademark Law 1.0 s.
21:656 Library Facility Design and Management 3.0 s.
21:657 Library Management and Information Systems 3.0 s.
21:658 Professional Practices and Ethics 3.0 s.
21:659 Current Trends in Library Media Services 3.0 s.

FINANCIAL AID

The School of Library and Information Science awards partial-tuition scholarships, as well as several graduate assistantships. To be considered for a grant, an applicant must have at least a 2.5 undergraduate grade-point average and have completed at least 12 semester hours of the required core course work with at least a 3.0 grade-point average. Prospective students are urged to apply for these awards before March 1. For information on student loans, work-study opportunities, and other financial assistance, 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, Calvins 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**

21719 Current Topics in Librarianship 1.0 a.h.

21720 Workshop in Library Science 1.0 a.h.

21810 Principles in Librarianship 2.0 a.h.

**Undergraduate Program**

High scores on verbal, quantitative, and qualitative aptitude tests are indicators of success in linguistics. Although few 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 formulas and abstract symbols. Depending on vocational goals, prospective linguistics students should either consider pursuing their studies through the M.A. 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 (essential patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of subdisciplines 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 (103:101), courses in phonetics (103:110), phonology (103:111), and syntax (103:112), and a course in language theory. 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 (e.g., 103:125, 103:126, 103:127) or in some other minor language (e.g., Classical Greek, Latin, Sanskrit, Old English). Remaining electives are chosen with the undergraduate adviser.

**Graduate Programs**

English in all graduate programs is on the merits of the new and the old, and in language, and the phonological structure of language. It is therefore well suited for students interested in the study of English as a foreign language. They may also wish to consider the M.A. in applied linguistics and other fields in connection with work or as an option of the M.A. program.

**Master of Arts**

All students 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 103:101:10 Acoustics, 103:111:11 Syntactic Analysis, 103:112:12 Phonological Analysis and Theory, 103:120:10 Historical and Comparative Linguistics, 103:121:13 Syntactic Theory, and 103:131 Linguistic Field Methods or an approved alternative.
Literature, Science, and the Arts

Chair: Alan F. Nagel
Professors: Carol A. Arctander (Medieval), David Callan (Latino Americans, Anne Meskel (Melville)), Lane Davis (Political Science), James O. Freedman (Law), Robert B. Heron (Music). Janet Hume (English), William H. McKeen (Physics and Astronomy), Howard Laster (Physics and Astronomy), Ronald G. Marshall (English, Alan P. National Geographic). Comparative Literature: John A. Smith, Ann F. Smidt, Renee Willms (German), Derek Wilson (Drama), Richard Wilson (English). Associate Professors: Judith Alls (German), Edward L. Dey (Comparative and Continental Education), Fred Foulkes (Philosophy), Nancy P. Robinson (Industrial Relations and Human Resources), Henry F. Fong (Biology), Sarah W. Mosher (History), Stephen G. Weissing (Sociology).
Degree offered: B.A.

The interdisciplinary Program in Literature, Science, and the Arts (LSA) is designed to provide elective courses for all students.

The Bachelor of Arts major is a LSA offers a liberal education broader than that permitted by the requirements for a major in a single subject area. It enables students will writing, analytical thinking, and discussion, while requiring coordination of courses across the disciplines of the liberal arts.

Students completing an LSA major may find that it prepares them for graduate study in the sciences, humanities, or social sciences.

Literature courses are open to juniors, seniors, and graduate students from any department or college. freshmen and sophomore students occasionally may be written by the instructor.

Courses are conducted by round table discussion in a small group of students with two or more faculty members. The following are six areas of specialization and practical perspectives. The topics of these courses engage the special contribution of particular disciplines while focusing on the role of importance in the area of assignment in the classes Reaching into the future from outstanding works of past and present. Specific requirements—broadly the general education courses for the B.A. in Literature, Science, and the Arts are as follows.

LSA
Natural, social sciences
Philosophy, religion, history
Literature beyond General Education Requirements
Fine arts

Foreign language:

one semester beyond second year (Foreign language courses are 6th original language also may be used to satisfy the requirement for literature).

Students seeking an LSA major should 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 the requirements for the College of Liberal Arts Honors Program. An honors student submits a honors project and takes an examination on a personal honors reading list during the semester before graduation.

 Courses

230 Introduction to the Liberal Arts 2.5 4.0
Discuss the nature and value of liberal education and explore interdisciplinary references.
1101 Her Pursuits of Happiness 2.5 4.0
Theoretical and practical approaches to happiness and well-being in the context of historical, cultural, philosophical, mythological, and social contexts.
1102 Love in the Western World 2.5 4.0
Theoretical, practical, and social issues of love as it appears in literature, music, art, philosophy, psychology, and sociology.
1131 Myth and Dreams 2.5 4.0
Interpretation of myths and dreams in their cultural and psychological contexts in the context of social and cultural contexts.
1210 The Good Society 2.5 4.0
The nature of social and the potential for human flourishing in the context of life in contexts.
1220 The Experience of Religion 2.5 4.0
Political, philosophical, and sociological approaches to religious and spiritual contexts.
1231 The Family in Law and Society 2.5 4.0
Dynamics of the family in the context of legal, social, and gender contexts. Focus on the role of marriage, family, gender, and the other social contexts.
1241 Individuals and Institutions 2.5 4.0
Social, economic, and political contexts. Focus on the role of the state, governmental, and institutional contexts are in the context of social and political contexts.
1250 Values in the Contemporary World 2.5 4.0
Social, economic, and political contexts. Focus on the role of the state, governmental, and institutional contexts are in the context of social and political contexts.
1252 How Caste: Science Policy and Values 2.5 4.0
An examination of major trends in the social, economic, and political contexts of caste, gender, and the role of caste in the social, economic, and political contexts. Focus on the role of the state, governmental, and institutional contexts are in the context of social and political contexts.
1260 Human Nature and the Law of Science 2.5 4.0
Relationship of scientific to humanistic, social, and moral contexts. Focus on the role of the state, governmental, and institutional contexts are in the context of social and political contexts.
1300 Evolution, Arguments and Evidence 2.5 4.0
Scientific arguments and evidence in the context of social, economic, and political contexts. Focus on the role of the state, governmental, and institutional contexts are in the context of social and political contexts.
Division of Mathematical Sciences

Degree 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:

22C:116 Operating Systems and Concurrent Programming
22C:137 Advanced Computer Organization and Architecture

22C:123 Programming Language Foundations
22C:125 Data Abstractions, Types, and Structures
22C:135 Introduction to Computation Theory
22C:145 Artificial Intelligence I
22C:153 Design and Analysis of Algorithms I
22C:167 Theory of Graphs
Any mathematics course numbered 22M:100 or above.
22C:153 Introduction to Probability
22C:154 Introduction to Mathematical Statistics
22C:154 Introduction to Discrete Probability Models
22C:167 Introduction to Stochastic Processes
22C:181 Actuarial Theory I
22C: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 any two 100-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 22C: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 22C:16 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 22C: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 career selection by the program in 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 22C:153 Introduction to Probability, 22C:154 Introduction to Mathematical Statistics, 22C:121 Actuarial Principles of Life Insurance, 22C:140-142 Actuarial Theory I-III, 22C:177 Numerical Analysis for Actuaries, and a course in operations research.

Additional courses of direct professional interest to actuaries include 22C:193 Demography and Life Table Construction, 22C:188 Risk Theory, and 22C: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 is unable 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 22C:154 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.


Students in applied mathematics should be familiar with computer programming.

Probability and Statistics

The basis for this program is the calculus sequence 22M.06-09 Calculus I-III or 22M.05-08 Accelerated Calculus I-II, and 22M.27 Introduction to Linear Algebra, or 22M.30-36 Engineering Calculus I-II and 22M.42 Vector Calculus. These courses should be followed by one of the three sequences 225.12 Introduction to Probability and 225.154 Introduction to Mathematical Statistics, 225.153 Introduction to Probability and 225.157 Introduction to Stochastic Processes, or 225.152 Probability and Statistics and 225.106 Analysis and Design of Experiments I or 225.152 Regression Analysis.

Students also should select one or two courses in computer science from 22Z.16 Introduction to Programming with Pascal, 22Z.17 Programming Techniques and Data Structures, or 22Z.18 Computer Organization and Assembly Language Programming and one or two courses in mathematical analysis with 22M.55 Fundamental Properties of Spaces and Functions, 22M.190 Classical Analysis I, and 22M.192 Analysis II. Substantive 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 225.101, 225.102, and 225.105.


Applied Mathematical Sciences Option

This option is designed to reflect the increasing diversification 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 beyond the last year of calculus: 22Z.27 Introduction to Linear Algebra, or 22Z.27 Introduction to Linear Algebra.

At least three Division of Mathematical Sciences courses numbered 22M.60 or above (excluding 22M.68, 69, and attending at least one course numbered 100 or above), and 22Z.105 or above, and

At least three additional quantitative courses from one department outside the division, or, at the adviser's discretion, two from 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 his or her program, 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 mathematics must earn at least 9 semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 22Z.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 at least one 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 are those that have been approved as satisfying the seven hour requirement of a minor in the Division of Mathematical Sciences.

Students majoring in computer science or statistics and actuarial science may not use the following courses to satisfy the minor field requirement. Further information on approved courses can be obtained from the division 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.
Courses

22C.117 Seminar in Applied Mathematical Sciences
Prerequisite: Consent of instructor.
22C.118 Reading and Research
Preparation: Consent of instructor.

Computer Science

Chair: Arthur C. Fleck
Professors: Donald A. Alton, Donald L. Eppley, Arthur C. Fleck
Associate professors: Robert J. Baner, Steven C. Draper
Lecturers: William F. Dwyer
Degrees offered: B.A., B.S., M.S., Ph.D.

Undergraduate Programs

Pre-Computer Science

Entering students who want to major in computer science should take courses that will provide a knowledge of knowledge of a particular science that is required for the science chosen by the student. The student's program is designed to develop expertise in methods of application of a mathematical, science, to build a good foundation in related topics of theoretical mathematics, statistics, or computer science, and to provide sufficient knowledge of a particular science so that the student can use mathematical science techniques in that science. The study plan can be arranged so that a student's degree is obtained from a science or a mathematics science department after completion of part of the plan.

The Ph.D. comprehensive examinations cover three areas: theoretical foundations in the mathematical sciences, methods of application, and the chosen scientific area. The graduate program is designed so that the student's dissertation research includes the study of the activities of an applied mathematician. For example, this could involve formulation of a model, critique of the model, and interpretation of the results.

Research and teaching assistantships are available to qualified students. Support for students as research assistants is available during the summer. Applications for fall semester admission and for financial support should be received by March 1. For application forms and further information about the academic program, write to the Chair, Program in Applied Mathematical Sciences, The University of Iowa, Iowa City, Iowa 52242.

Advanced Placement

The Computer Science Advanced Placement test can be used to gain credit for 22C.16 and 22C.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.

22M.25 Calculus I 4 s.h.
22M.26 Calculus II 4 s.h.
22C.25 Introduction to Linear Algebra 4 s.h.

22C.16 Introduction to Programming with Pascal 4 s.h.
22C.17 Programming Techniques and Data Structures 3 s.h.
22C.18 Computer Organization and Assembly Language Programming 4 s.h.
22C.19 Discrete Structures 3 s.h.
22C.21 Algorithms and Data Structures 3 s.h.
22C.25 Programming Language Concepts 3 s.h.
22C.23 Digital Systems and Computer Organization 3 s.h.
22C.23 Introduction to Systems Software 3 s.h.
Total 36 s.h.

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
22C.31 Computer Graphics
22C.35 Numerical Analysis
22C.56 Tracts in Computer Science
22C.99 Honors in Computer Science (if repeated, credit as only one)
Computer Science/LEIBRAL ARTS

22C:15 Software Engineering
22C:16 Operating Systems and Concurrent Programming
22C:12 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:125 Data Abstractions, Types, and Structures
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:153 Design and Analysis of Algorithms
22C:154 Probability and Statistics
22C:158 Computer Communications
22C:198 Individual Programming Projects

Mathematics courses
22M:69 Elements of Group Theory
22M:75 Fundamentals of Spaces and Functions
22M:76 Abstract Algebra

Computer Science requirements of Geometry
Any 100-level course except 22M:197

Statistics courses
22S:39 Probability and Statistics for the Engineering and Physical Sciences
22S:120 Probability and Statistics
22S:153 Introduction to Probability
Any course numbered above 22S:153

These courses must be taken pass-no-pass. Students 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 3.2 or better may join the College of Liberal Arts Honors Program, interested students should contact the Honors Program office in the Iowa Memorial Union. To graduate with honors, students must complete between 4 and 6 semester hours of 22C:99 Honors in Computer Science and submit acceptable honors thesis. To take 22C:99, 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 12 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-no-pass. 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:16 Introduction to Programming with Pascal, 22C:17 Programming Techniques and Data Structures, 22C:18 Computer Organization and Assembly Language Programming, and two more courses from among: 22C:9 Operating Systems with UNIX, and/or any computer science courses numbered higher than 22C:18, except those numbered 22C:90-95. For purposes of the minor only, the courses listed here, other than 22C:95, are considered upper level. These courses may be taken pass-no-pass. Engineering majors may not use courses required in the engineering curriculum 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
22C:122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:135 Introduction to Computation Theory
22C:154 Probability and Statistics

Additional courses totaling 24 semester hours are required:

A 200-level 22C:53 course

Students must complete at least 18 semester hours from 200-level computer science courses with an average of B or better.

Doctor of Philosophy
Doctoral students are expected to complete 80 to 100 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
22C:122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:153 Data Abstractions, Types and Structures
22C:177 Introduction to Compiler Construction
22C:154 Probability and Statistics
22C:153 Design and Analysis of Algorithms
22C:144 Database Management Systems
22C:145 Artificial Intelligence

Students must also complete at least 18 semester hours from 200-level computer science courses, with an average of B or better.

In addition to the course work in computer science, students must complete at least three years of graduate courses with grades of A or B, in one of these three areas:

Algorithms
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 elect a faculty adviser to direct their research. Students and their advisers select the dissertation committee.

In consultation with the adviser and dissertation committee, at least prepare a plan of study and specifications for a
Graduate School Courses

Competence and experience in the use of a digital computer in problem solving is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence 22C-106, 22C-107 Programming Techniques and Data Structures is recommended. Students in fields in which other programming languages are heavily used may take 22C-106 Introduction to Computing with FORTRAN, or 22C-109 Programming with COBOL more appropriate.

Courses

Primarily for Undergraduates

22C-106 Cooperative Education Training
- Undergraduate 3 b.h.
- Freshmen and sophomore students with a strong interest in computers for career integration; also for junior or senior students majoring in fields requiring knowledge of the pre-computer science requirements and experimental exposure.

22C-107 Survey of Computers
- Undergraduate 4 b.h.
- The nature, uses, and limitations of computers and computing systems. Software used in computing applications, including batch and interactive systems. Programming concepts and techniques. Application of computers to business and government. Computer-assisted instruction, information retrieval, the impact of computing technology on society.

22C-108 Introduction to Computing with FORTRAN
- Freshmen and sophomore students interested in learning computer programming to prepare for a software engineering or computer science career.

22C-109 Programming with COBOL
- Undergraduate 3 b.h.
- Basic concepts of computer structure and programming techniques using a high-level programming language, algorithms, data representations, subroutines, tape and disk operations, and file organization.

22C-110 Programming with Pascal
- Undergraduate 5 b.h.
- Introduction to programming and program design techniques using a high-level programming language, various data organizations and their applications, computer-aided software engineering techniques and environment.

22C-111 Programming and Data Structures
- Undergraduate 5 b.h.
- Continuation of 22C-106. This course is designed for students majoring in computer science.

22C-112 Programming and Data Structures
- Undergraduate 3 b.h.
- Continuation of 22C-106. This course is designed for students majoring in computer science.

22C-113 Introduction to Computer Science
- Undergraduate 3 b.h.
- Introduction to computer science concepts, algorithms, data structures, and programming techniques using the C programming language.

22C-114 Computer Organization
- Undergraduate 3 b.h.
- The study of computer organization, memory addressing and structures, CPU/design and I/O interconnection, cache memory, assembly language, assembly language programming, assembly language instruction set, instruction set architecture, addressing modes, addressing methods, interprocessor communication, and system software.

22C-115 Computer Organization
- Undergraduate 3 b.h.
- The study of computer organization, memory addressing and structures, CPU/design and I/O interconnection, cache memory, assembly language, assembly language programming, assembly language instruction set, instruction set architecture, addressing modes, addressing methods, interprocessor communication, and system software.

22C-116 Operating Systems and Concurrent Programming
- Undergraduate 3 b.h.
- An introduction to the design and implementation of operating systems and concurrent programming concepts.

22C-117 Computer Organization
- Undergraduate 3 b.h.
- The study of computer organization, memory addressing and structures, CPU/design and I/O interconnection, cache memory, assembly language, assembly language programming, assembly language instruction set, instruction set architecture, addressing modes, addressing methods, interprocessor communication, and system software.

22C-118 Computer Programming Languages
- Undergraduate 3 b.h.
- An introduction to the design and implementation of programming languages and computer-aided software engineering.
The candidate must write a thesis and pass a final examination.

The candidate is required to demonstrate reading proficiency in French, German, or Russian other than by passing a language test administered by the appropriate foreign language department or otherwise approved by the Mathematics Department or by earning a grade of "B" or better in the second semester of a sequence offered by the appropriate foreign language department. This demonstration must take place after the student has enrolled in graduate school.

For information about the Ph.D. programs in mathematics education, consult the School of Education's web site or submit a written application to the Department of Mathematics Education, available from the College of Education.

The Department of Mathematics also cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematics.

### Courses

**Undergraduate: Lower Division**

**MATH 300** Cooperative Education Internship 4-6 h.

**MATH 308** Precalculus I 3 h.

**MATH 309** Precalculus II 3 h.

**MATH 311** Introduction to Probability 3 h.

**MATH 312** Introduction to Mathematical Statistics 3 h.

**MATH 314** Introduction to Stochastic Processes 3 h.

**MATH 315** Design and Analysis of Experiments I 3 h.

**MATH 316** Introduction to Mathematical Logic 3 h.

**MATH 317** Introduction to Mathematical Economics 3 h.

**MATH 318** Introduction to Mathematical Game Theory 3 h.

**MATH 321** Calculus I 3 h.

**MATH 322** Calculus II 3 h.

**MATH 323** Calculus III 3 h.

**MATH 324** Calculus IV 3 h.

**MATH 325** Calculus V 3 h.

**MATH 326** Calculus VI 3 h.

**MATH 327** Calculus VII 3 h.

**MATH 328** Calculus VIII 3 h.

**MATH 329** Calculus IX 3 h.

**MATH 330** Calculus X 3 h.

**MATH 331** Calculus XI 3 h.

**MATH 332** Calculus XII 3 h.

**MATH 333** Calculus XIII 3 h.

**MATH 334** Calculus XIV 3 h.

**MATH 335** Calculus XV 3 h.

**MATH 336** Calculus XVI 3 h.

**MATH 337** Calculus XVII 3 h.

**MATH 338** Calculus XVIII 3 h.

**MATH 339** Calculus XIX 3 h.

**MATH 340** Calculus XX 3 h.

**MATH 341** Calculus XXI 3 h.

**MATH 342** Calculus XXII 3 h.

**MATH 343** Calculus XXIII 3 h.

**MATH 344** Calculus XXIV 3 h.

**MATH 345** Calculus XXV 3 h.

**MATH 346** Calculus XXVI 3 h.

**MATH 347** Calculus XXVII 3 h.

**MATH 348** Calculus XXVIII 3 h.

**MATH 349** Calculus XXIX 3 h.

**MATH 350** Calculus XXX 3 h.
applications shown from the biological sciences. Prerequisites: Three years of high school mathematics or equivalent.

33.45 Calculus for the Biological Sciences 3 u. b.
Differential and integral calculus, logarithm, exponential and antilogarithms, trigonometric functions, analytic geometry, applications. Prerequisites: Two years of high school mathematics or equivalent.

33.47 Quantitative Methods I 4 u. b.
Overview of methods for solving problems in management, social science and related areas, introduction to probability and statistical concepts, modern statistical methods, and the use of computer programs in solving problems. Prerequisites: Two years of high school mathematics or equivalent.

23.10 Elementary Functions 4 u. b.
Polynomials, rational, circular, hyperbolic, and exponential functions. Logarithms, exponents, properties of tables, corner sections, their formation. Formulas for tables are given. Prerequisites: Two years of high school algebra and one year of high school geometry, or equivalent.

23.25 Calculus I 5 u. b.
Together with 20.25. Calculus I and II contain the basic concepts, methods, and techniques of single variable differential and integral calculus, topics include differentiation, integrals of simple functions, area, and volume problems, definite integrals, and numerical methods. Prerequisites: One year of high school mathematics, including algebra and geometry, or equivalent. MATH 220 or 241; 20.25; 21.01 or 21.02.

23.35 Calculus II 5 u. b.
Continuation of 20.35. Conceived for individual needs. Prerequisite: 23.25 or 241.

23.47 Introduction to Linear Algebra 4 u. b.
The study of linear algebra and geometry of three-dimensional space, vectors and planes, vector spaces, linear transformations, systems of linear equations, reduction to row echelon form, solutions of linear equations, determinants, and their applications, including linear independence, vector spaces, linear transformations, and matrices. Prerequisites: 23.35 or 20.35 or 241 or 251 or 261.

23.50 Calculus III 5 u. b.
Multivariable calculus, vector functions, limits, continuity, directional derivatives, tangent planes, optimization, Lagrange multipliers, multiple integrals, vector fields, line integrals, surface integrals, vector theorems. Prerequisites: 23.25 or 20.25 and 23.35 or equivalent.

23.55 Computer Lab for Calculus I 1 u.
Numerical and graphical solutions of differential and integral calculus, concepts and techniques of calculus and linear algebra as the basis for computer programming, with an emphasis on programming experience with Maple. Prerequisites: completion of 23.35 or 241 or equivalent.

23.65 Computer Lab for Linear Algebra 1 u.
Introduction to the concepts of vector spaces with emphasis on solving linear systems of equations by numerical and graphical techniques. Prerequisites: completion of 23.35 or 20.35 or 241 or equivalent.

23.75 Introduction to Differential Equations 5 u.
The study of differential equations and their applications, approximate solutions, solutions of differential equations, and series solutions. Prerequisites: 23.35 or equivalent.

23.85 Introduction to Linear Algebra I 1 u.
Further applications of linear algebra, the geometry and transformation of linear functions, linear systems of equations, matrix eigenvalues, symmetric matrices. Prerequisites: 20.35 or 23.35 or equivalent.

23.96 Engineering Calculus 6 u. b.
Further applications of single variable and multivariable calculus, emphasis on applications of calculus to engineering problems, introduction to numerical methods. Prerequisites: Completion of 23.55 or 241 or equivalent.

23.98 Engineering Calculus 2 I 6 u. b.
Further applications of single variable and multivariable calculus, emphasis on applications of calculus to engineering problems, introduction to numerical methods. Prerequisites: Completion of 23.55 or 241 or equivalent.

23.50b Differential Equations for Engineers 4 u. b.
Methods of solution of first-order differential equations, higher-order linear differential equations, and systems of linear differential equations including Laplace transforms, applications emphasizing electrical and mechanical circuits. Prerequisites: 23.35 or equivalent.

23.55a Matrix Algebra for Engineers 2 u. b.
Applications of matrices and determinants to systems of linear equations, eigenvalues and eigenvectors, orthogonality, least squares, numerical methods, least squares, linear independence, bases, and projection, statistics covering probability, descriptive statistics and data analysis, and determination of probability distributions for discrete and continuous data. Prerequisites: 23.35 or equivalent.

23.55b Vector Calculus for Engineers 2 u. b.
Vector calculus involving line and path integrals, potential functions, Green's Theorem, independence of path, divergence, and Stokes' Theorem. Prerequisites: 23.35 or equivalent.

23.55c Advanced Calculus I 4 u. b.
Advanced calculus starting at the beginning of the course with emphasis on applications to engineering and physical science. Prerequisites: 23.55a or equivalent.

23.55d Advanced Calculus II 4 u. b.
Second semester differential and integral calculus for engineers. Prerequisites: 23.55a or equivalent.

23.55e Numerical Analysis for Engineers 4 u. b.
Principles of numerical analysis, applied to engineering problems. Prerequisites: 23.55a or equivalent.

Elementary Topics of General Interest

These courses are not open to graduate and undergraduate students.

23.58 Elementary Groups Theory 3 u.
Sets, functions, bijections, permutation groups, cyclic groups, Lagrange's theorem, group actions, cosets, normal subgroups, and quotient groups, emphasis on illustrative examples. Prerequisites: 23.35 or equivalent.

23.60 Fundamental Properties of Spaces 3 u.
Elementary topology and axiomatic properties of Euclidean and projective geometry. Applications to geometry. Prerequisites: 23.58 or equivalent.

23.70 Foundations of Geometry 3 u.
Foundations of Euclidean geometry, including a modern axiomatic development of the concepts of distance, angle, congruence, and parallelism. Prerequisites: 23.58 or equivalent.

23.71 Elementary Non-Euclidean Analysis 3 u.
A study of the development of a common language for Euclidean and non-Euclidean geometries, construction of models for various geometric systems, and the historical development of non-Euclidean geometries. Prerequisites: 23.58 or equivalent.

23.80 Theory of Relativity 3 u.
A study of the Lorentz transformations, special and general coordinates, the field of forces and the field equations, and the equivalence of mass and energy. Prerequisites: 23.55a or equivalent.

23.81 Geometry for Elementary Teachers 3 u.
A study of Euclidean and non-Euclidean geometry, applications of geometry in everyday life, and the use of technology in teaching geometry. Prerequisites: 23.58 or equivalent.

Undergraduate: Upper Division

23.55 Differential Equations 4 u. b.

23.60a Matrix Analysis 2 u. b.
Matrices, linear transformations, eigenvalues, eigenvectors, orthogonal matrices, functions of matrices, repeated eigenvalues, and nonrectangular matrices. Prerequisites: 23.35 or equivalent.

23.65 Introduction to Wave Theory 3 u.
Motion, linear transformations, differentiable functions, smooth functions, characteristic rays, Gaussian applications of linear algebra, and Fourier series. Prerequisites: MAT 23.35 or equivalent.

23.70 History of Mathematics 3 u.
Special topics in the history and development of mathematics. Not for graduate math credit, except Program II (Secondary Education). Prerequisites: Mathematics; two semesters of calculus and one semester of linear algebra, or consent of instructor.

23.100 Classical Analysis I 3 u.
Real numbers, measurable sets, metric spaces, sequences and series, continuity, uniform convergence, differentiation, and integration. Prerequisites: Completion of 23.55 or consent of instructor.

23.101 Classical Analysis II 3 u.
Further topics in classical analysis, including measure and integration theory, functional analysis, and applications. Prerequisites: Completion of 23.100 or consent of instructor.

23.110 Algebra I 3 u.
Sets and functions, order and equivalence relations, mathematical induction, fields, rings, ideals, integers, modular arithmetic, congruences, quaternions, complex numbers. Prerequisites: 20.35 or 23.35.

23.111 Algebra II 3 u.
Further topics in algebra, including commutative rings, principal ideal domains, unique factorization domains, Burnside's Theorem, and Galois Theory. Prerequisites: 23.110 or equivalent.

23.115 Number Theory 3 u.
The theory of numbers, including modular arithmetic, congruence relations, Diophantine equations, quadratic forms, and the distribution of prime numbers. Prerequisites: 20.35 or 23.35.

23.117 Complex Variables I 3 u.
Operations with complex numbers, functions of complex variables, power series, Cauchy's theorem, Laurent series, conformal mappings. Prerequisites: 23.55a or equivalent.

23.118 Complex Variables Applications 3 u.
Complex mappings and integral transforms (Fourier, Laplace), Laurent series, conformal mappings. Prerequisites: 23.115.

23.121 Advanced Calculus I 4 u. b.
Real numbers, limits, continuity, uniform continuity, infinite series, numerical sequences, functions, Riemanns integration, improper integrals. Prerequisites: Completion of 23.55 or consent of instructor.

23.122 Advanced Calculus II 3 u.
Advanced calculus, including pointwise convergence, uniform convergence, uniform continuity, the interchange of limit operations, and the interchange of a limit operation and integration or differentiation. Prerequisites: 23.121.

23.124 Foundations of Set Theory 3 u.
Basic set-theoretic ideas, cardinal and ordinal numbers, the axiom of choice, well-ordering theorem, Zorn's lemma, Goedel's theorem, the independence of the axiom of choice, and the consistency proof for the continuum hypothesis. Prerequisites: 23.122 or equivalent.

23.130 Abstract Algebra I 3 u.
Prerequisites: 23.58 or equivalent.

23.131 Abstract Algebra II 3 u.
Prerequisites: 23.130.

23.132 Foundations of Set Theory 3 u.
Basic set-theoretic ideas, cardinal and ordinal numbers, the axiom of choice, well-ordering theorem, Zorn's lemma, Goedel's theorem, the independence of the axiom of choice, and the consistency proof for the continuum hypothesis. Prerequisites: 23.122 or equivalent.

Theoretical courses toward a degree in mathematics; not for graduate study.

23.135 Mathematics: I 3 u.

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 candidate'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 credit 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
225.159 Methods of Statistical Inference
225.180-182 Actuarial Theory I-II
225.177 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 225.150-154 at another institution may waive this 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
225.167 Introduction to Discrete Probability Models
225.162 Introduction to Stochastic Processes

At least two of:
225.164 Introduction to Discrete Probability Models
225.171 Topics in Statistics
225.202 Theory of Statistics II
225.209 Introduction to the Theory of Nonparametric Statistics
225.253-254 Advanced Inference I-II
225.255 Linear Models
225.256 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
225.180-182 Actuarial Theory I-II
225.183 Data Analysis

At least two of the following:
225.156 Applied Time Series Analysis
225.161 Applications of Multivariate Statistical Techniques
225.168 Analysis and Design of Experiments II

The remainder of the program consists of at least two additional courses numbered 225.133 or above, and other courses approved by the advisor. With the advisor's approval, a course in another field related to the thesis may be substituted.

Experience in a computer language such as FORTAN is required. If students satisfy the Requirement 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 another field, or a study of the characteristics of a new statistical method. It generally requires 3 semester hours.
hours of 225:191. Individual Study for two semester.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete:
225:211 Analysis II
225:212 Regression Analysis
225:198 Analysis and Design of Experiments I
225:267 Introduction to Stochastic Processes
225:172 Data Analysis
225:252 Advanced Inference
225:255 Linear Models
225:264 Theory of Probability I
At least 2 semester hours of any combination of the following:
225:291 Seminar Mathematical Statistics
225:293 Seminar: Probability
At least one of the following:
225:156 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:168 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
225:227 Theory of Probability II
225:250 Students must achieve at least a 3.5 grade-point average and complete one course in each of 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 225:201, 225:202, 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. 225:197 Readings in Statistics and/or Actuarial Science, or 225:199 Reading Research.
During the graduate program, students may take course work or seminars in other departments to achieve certain auxiliary goals of the doctoral degree in statistics to obtain an area of specialization in 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 written form to 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 request 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, 225:155, 225:201, 225:205, and 225:254. 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 core courses 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 teamed 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 the 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.

Courses
Primarily for Undergraduates
Students may not receive credit for both Department of Statistics and Actuarial Science courses numbered below 100 after receiving credit for courses numbered above 100. Students may receive credit in only one of the courses: 225:72, 225:22, 225:25, 225:102.
225:3 Statistics and Society 4 a,b,c,d
A broad and critical view of their role in public policy and personal life. Examples of various actuarial, consulting, sociological, and statistical purposes to solve a wide variety of social problems. This course is designed to make students conscious of the ethical implications of statistical analysis. Prerequisites: 225:173 or equivalent. Same as 21:725.
225:4 Qualitative Methods II 4 a,b,c,d
An introduction to the sampling and statistical reality of statistics. The sampling and statistical reality of statistics. The subject matter includes: simple random sampling, stratification, and cluster sampling. Prerequisites: 225:173 or equivalent.
225:211 Elementary Statistics and Tolerance 4 a,b,c,d
Gisting techniques for presenting data, interpretations of classical statistics, and their application to situations involving random variables. Emphasis on problems in engineering. Students must complete the course successfully and pass an oral examination. Same as 21:725.
225:3 Probability and Statistics for the Engineering and Physical Sciences 4 a,b,c,d
Probability and statistics, random variables, probability distributions, discrete and continuous distributions, confidence intervals, hypothesis testing, regression, and applications to engineering and physical sciences. Prerequisites: 225:173 or equivalent. Same as 21:725.
225:9 Cryptography and Information Security 3 a,b,c,d
Cryptography and information security, foundations of cryptography, public key cryptography, digital signatures, and secure communications. Prerequisite: 225:173 or equivalent. Same as 21:725.

For Undergraduates and Graduates
225:200 Cooperative Education Internship 3 a,b,c,d
225:211 Biostatistics 3 a,b,c,d
A broad and critical view of their role in public policy and personal life. Examples of various actuarial, consulting, sociological, and statistical purposes to solve a wide variety of social problems. This course is designed to make students conscious of the ethical implications of statistical analysis. Prerequisites: 225:173 or equivalent. Same as 21:725.
225:221 Biostatistics 3 a,b,c,d
Descriptive and inferential methods, correlation and regression, analysis of variance, and analysis of covariance. Prerequisites: 225:201 or equivalent.
225:230 Introduction to Statistical Methods 3 a,b,c,d
An introduction to statistical methods. This course provides an introduction to statistics with emphasis on the applications of computer packages. One course credit is allowed for each semester of the course. Prerequisite: 225:173 or equivalent. Same as 21:725.
225:230 Biostatistics 3 a,b,c,d
Descriptive and inferential methods, correlation and regression, analysis of variance, and analysis of covariance. Prerequisites: 225:201 or equivalent.
225:230 Introduction to Statistical Methods 3 a,b,c,d
An introduction to statistical methods. This course provides an introduction to statistics with emphasis on the applications of computer packages. One course credit is allowed for each semester of the course. Prerequisite: 225:173 or equivalent. Same as 21:725.
225:230 Biostatistics 3 a,b,c,d
Descriptive and inferential methods, correlation and regression, analysis of variance, and analysis of covariance. Prerequisites: 225:201 or equivalent.
225:230 Introduction to Statistical Methods 3 a,b,c,d
An introduction to statistical methods. This course provides an introduction to statistics with emphasis on the applications of computer packages. One course credit is allowed for each semester of the course. Prerequisite: 225:173 or equivalent. Same as 21:725.
225:230 Biostatistics 3 a,b,c,d
Descriptive and inferential methods, correlation and regression, analysis of variance, and analysis of covariance. Prerequisites: 225:201 or equivalent.
225:230 Introduction to Statistical Methods 3 a,b,c,d
An introduction to statistical methods. This course provides an introduction to statistics with emphasis on the applications of computer packages. One course credit is allowed for each semester of the course. Prerequisite: 225:173 or equivalent. Same as 21:725.
Microbiology

Chad Irving, Ph.D.
Degree offered: 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 a part 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 fraction of contemporary biochemical research employs microbiological and immunological methods. Some research areas in which both theoretical and technological 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 the stabilization of the biosphere by recycling and detoxifying waste products; and the genetics and evolution 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 the opportunity to teach at the university level, given greater responsibilities and correspondingly higher salaries.

Undergraduate Program

Bachelor of Science

An undergraduate student pursuing a major 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 admission of fall 1994 must complete a minimum of 14 semester hours of microbiology to obtain a B.S. degree. Students who become microbiology majors after spring 1994 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 61-91, 61-171, or 61-172, and 1 semester hour of 61-163 Seminar in Microbiology may count toward this requirement.

Students who want 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 61-157 General Microbiology only if they receive a "C" or above in 61-157. 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 I 2 s.h.
4101 Elementary Quantitative Analysis 4 s.h.
4121 Organic Chemistry I 3 s.h.
4122 Organic Chemistry II 3 s.h.
4141 Organic Chemistry Laboratory 3 s.h.
99120 The Chemistry of Biological Materials 3 s.h.
99120 Metabolism 3 s.h.
22315 Mathematics for the Biological Sciences or 22319 Elementary Functions 4 s.h.
29112-12 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 (22M-16, 22M-25, or 22M-35) must be taken rather than 22M-15 or 22M-20.

Courses that are recommended include the following:

8W10 Expository Writing 3 s.h.
8W112 Writing for the Sciences 3 s.h.
22C7 Microcomputer Computing with FORTRAN 3 s.h.
22C16 Introduction to Programming with Pascal 4 s.h.
22C17 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 61-157-172 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 (Lincoln)
Assistant professors: Edwin W. Anderson (Temple), Victor J. Cohan (Temple), Michael J. Hall (Capstone), Wesley C. Carpenter (Major)
Instructor: W. Stuart S. B. Bailey (NIK), Richard A. Chasey (ISO)

The Department of Military Science is the academic unit of the Army Reserve Officers Training Corps (ROTC) at The University of Iowa. Participation in the program is voluntary. Courses in the program are 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 the role utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior years is designed to develop leadership skills for potential officers. Students are identified as leadership potential at the Fort Lewis Army Reserve Officers Training Center. The ROTC Advanced Course is designed to develop the highest standards of leadership and character necessary for the successful completion of ROTC training.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army and serve either on active duty or with the National Guard or the Army Reserve near their home. Those choosing active duty serve a minimum of three years.

In general, students who have not taken the basic course may qualify for the advanced course.
by attending a basic camp during summer, all expenses paid. Students who qualify also may be admitted to the advanced course by taking 23-19 Fundamentals of Military Organization and Operation.

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 on active duty to attend graduate school. An 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 intercollege 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 military ball, a formal dinner called Cadet Corps Dining-in, 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 Enginers 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 base U.S. Bill and serve as officer trainees in guard and reserve units in the local area while attending the University.

Courses

23-19 Introduction to the Military 1.5 h.
A.brief approach to military organizations with emphasis on the U.S. Army, divisional level and above. Includes basic organization of the military services, military personnel, military conflict, weapons, missions, personnel, and logistics of the army, officer and non-commissioned officer duties and responsibilities, and an introduction to reporting and rifle marksmanship.

23-20 Foundations of Military Organizations 1.5 h.
A.perspective toward understanding military organizations with emphasis on the U.S. Army. Includes an overview of the military by examining: a. the basic philosophy of the Staff/Force concept, b. the military establishment, present and past. Emphasis is current event issues, and an introduction to leadership and management related to the development of better officers in our country.

23-23 Strategic and Tactical Military Analysis 3 h.
Theory and application of strategic and tactical analyses. Survey of American military strategy since the American Revolution with respect to the principles of victory as outlined by Clausewitz.

23-24 Strategic and Tactical Military Analysis II 1.5 h.
Introduction to the small-unit tactical leadership responsibilities, with emphasis on individual and small-unit leadership. Emphasis on army and navy leadership of small groups, and general leadership of small groups.

A course covering the essential structures, principles, and processes of military organizations and operations.

23-116 Small Unit Leadership 3 h.
An overview of leadership and planning with emphasis on unit and personnel management. Emphasis is on the use of small-unit leadership skills in planning, organizing, and motivating personnel and in the development of leaders at the small-unit level.

23-117 Principles of Military Operations 3 h.
Fundamentals of military planning and preparation of operations with emphasis on the preparation of tactical operations plans. Also, includes the characteristics of a tactical environment, to include defensive operations, offense, maneuver, air support, and amphibious operations. Includes a weekly field training exercise. Prequisite: basic course or equivalent training.

23-128 War and Law 3 h.
Emphasis on military law and leadership in warfare organizations, including leadership of military law and the military justice system as it applies to a new branch, 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: 23-116 and 23-117.

23-221 Readings in Contemporary Military Issues 3.5 h.
Unconventional methods in the historical development of military knowledge and practice. Emphasis is on the role of military knowledge and practice in military science to develop insights on military and society. Prerequisite: 23-116 and 23-117.

23-222 Readings in Contemporary Military Issues 3 h.
Unconventional methods in the historical development of military knowledge and practice. Emphasis is on the role of military knowledge and practice in military science to develop insights on military and society.

Training

The ROTC is a component of the University of Iowa and does not provide a complete degree-granting education. The University of Iowa offers comprehensive programs in business, education, engineering, fine arts, law, medicine, pharmacy, social sciences, and the natural sciences. The ROTC program provides opportunities to develop leadership skills, to learn about the military and society, and to serve the community in a variety of ways.

The Museum of Natural History offers courses that provide a fundamental background in the history, philosophy, and management of museums; their functions and organizational structure; 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 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 museumology 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 the department are of value only in preparing students to pursue 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 professional experience in the museum profession by participating directly in programs of The University of Iowa Museum of Natural History and through formal internships with other museums.

Museum Education

Chair and curator: George E. Schipper
Assistant professor: George O. Schipper
Adjunct associate professor: Daniel C. Anderson
Adjunct instructor: William W. Thompson

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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 recital required 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 music, vocal music, and music therapy. In addition to the S.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 concentration. 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 25-21 Violin, cello, and bass majors take one year of 25-21 Violin)

25-10 Cello Strings 1-2 s.h.
(2-violins take viola; bassists take violin, viola, and cello)

25-140 Instrumental Techniques... 2 s.h.
(normal clarinet and cornet)

25-120 Techniques of Conducting 2 s.h.

25-110 Instrumental Conducting 2 s.h.

25-110 String Methods and Materials... 4 s.h.

25-146 Methods and Materials: Elementary School(Elementary Music) 2 s.h.

25-110 Observation and Laboratory Practice in the Secondary School 6 s.h.

25-110 Laboarotory Practice in the Elementary School 6 s.h.

25-110 Seminar: Curriculum and Student Teaching 1 s.h.

Brass, Woodwind, or Percussion Majors

Brass, woodwind, and percussion majors in music education participate in a concert band each semester and in marching band for two fall semesters during the first two years in residence at the university. Students may substitute marching band techniques for marching band, with permission of their advisor and the director of bands. Courses required:

25-146 Instrumental Techniques 8 s.h.

25-146 Techniques of Conducting 2 s.h.

25-146 Instrumental Techniques 3 s.h.

25-146 Method and Materials: Elementary School (Elementary Music) 2 s.h.

25-136 Practicum Band Instrument Care and Repair 1 s.h.

25-146 Band Methods and Materials 3 s.h.

25-146 Observation and Laboratory Practice in the Secondary School 3 s.h.

25-146 Methods and Materials: Elementary School 6 s.h.

25-167 Seminar: Curriculum and Student Teaching 1 s.h.

Vocal and Keyboard Majors

Vocal performance majors should consult the music office for recommendations.

25-147 Choral Methods 3 s.h.

25-146 Choral Conducting and Literature 2 s.h.

25-115-116 Selection for Singers I-II 4 s.h.

25-146 Methods and Materials: Elementary School General Music 3 s.h.

25-146 Methods and Materials: Secondary School General Music 3 s.h.

25-146 Observation and Laboratory Practice in the Secondary School 6 s.h.

25-146 Laboratory Practice in the Elementary School 6 s.h.

25-167 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard majors preparing for music teacher certification must pass the Iowa certification exam of 25-71-72 Group 1 and 25-71-72 Group 2 in Piano III. Keyboard majors preparing for the comprehensive exam must also pass the 25-17 Voice for two semesters.

Keyboard Majors (Nonvocal)

Keyboard majors who elect to teach in the vocal area must complete the requirements in either jazz-woodwind-percussion or string area and pass the comprehensive exam of 25-71-72 Group 1 and 25-71-72 Group 2 in Piano III.

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:

3-110 Beginning Guitar 2 s.h.

25-146 Methods and Materials: Elementary School General Music 3 s.h.

25-146 Laboarotory Practice in the Elementary School 2 s.h.

Applied music Ensembles: (chorus, band, or orchestra) 2 s.h.

Two of the following:

25-1 Literature and Theory I 3 s.h.

25-2 Literature and Theory II 3 s.h.

25-10 Fundamentals of Music 3 s.h.

25-23 Masterpieces of Music I 3 s.h.

25-24 Masterpieces of Music II 3 s.h.

Students who want to complete an area of specialization in music without teacher certification should complete 25-10 Fundamentals of Music and 25-110 Seminar in the regular music office.

Jazz Studies Emphasis

Students are admitted to this program only by audition, which occurs after they complete the freshman year. When admitted, the student is assigned a jazz studies advisor in addition to the regular faculty advisor.

Senior recital and recital attendance requirements are the same as those for the B.M. degree. Course requirements are the same as those for the B.M. degree, plus an additional 20 semester hours of Jazz courses for performance majors, or an additional 16 semester hours for those in the public education certification program.

Students in the jazz studies emphasis program must attend a weekly jazz seminar.

Music Therapy

Admission to the program in music therapy is based on 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/field facility 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.

Courses prerequisite to the program are available in the music education office.

Course requirements for the major in music therapy are:

25-04 Music Therapy Practice... 1-3 s.h.

25-06 Music in Special Education and Recreation... 3 s.h.

25-144 Music Therapy... 2 s.h.

25-144 Behavioral Research in Music... 3 s.h.

25-146 Behavioral Research in Music... 3 s.h.

25-146 Music Therapy Techniques... 2 s.h.

25-146 Behavioral Research in Music... 3 s.h.

25-146 Music Therapy Techniques... 3 s.h.

Composition/Theory Major

After applying for admission to the program, the candidate is assigned a faculty advisor. Admission to the program is in most cases conditional through the end of the sophomore year. Full admission is granted by consensus of the theory/composition faculty on the basis of:
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. 21 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, form, and counterpoint), and history and literature, before registering. The advisory examination is given each semester on the two days (excluding Sunday) before registration. A worksheet describing the general content of these tests is available from the director's office, School of Music. (For general graduate admission, degree, and examination requirements, see the "Graduate College" section of the Catalog.)

Graduate Pedagogy Minor

Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses.

25:145 Contrapuntal Forms 3 s.h.
25:147 Total Forms (curriculum exam, excused by advisor) 3 s.h.
25:236 Observation and Practice Teaching in Theory 1-2 s.h.
25:238 Methods and Techniques of Teaching Basic Theory 3 s.h.

Two courses from the following:
25:148 Analysis of Music Literature 1800-1750 3 s.h.
25:150 Analysis of Music Literature 1750-1825 3 s.h.
25:151 Analysis of Music Literature 1850-Present 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.
25:212 Gregorian Chant 3 s.h.
25:215 Raga 3 s.h.
25:222 Variation Forms 3 s.h.

Master of Arts

The Master of Arts with thesis in music is offered in performance (including conducting), composition, and musicology. The Master of Arts without thesis is offered in music education and instrumental or vocal pedagogy, including accompanying. Both require a minimum of 30 post-baccalaureate semester hours. Information about specific admissions and curriculum requirements for each degree is available from the School of Music. All curricular must include the requirements listed below:

General
25:321 Introduction to Graduate Study in Music 2 s.h.

Music Theory
25:240 Introduction to Contemporary Music and Theory 3 s.h.
25:11 Review Exam as determined by advisory exam.

Music History
25:301-302 Advanced History and Literature of Music I & II or, equivalent, or satisfactory advisory examination score.

Ensemble Participation

Students participate in major ensembles each semester of residence (see previous list of the major ensembles). During the summer semester, students must be available for ensemble participation as needed. Ensemble assignments are made by the major teacher and the ensemble director. Keyboard majors may substitute accomplishment for participation in a major ensemble at their advisor's discretion. Theory, composition, musicology, and music education majors may, with their advisor's permission, substitute other ensembles. Requests for adjustment of this requirement must be submitted in writing to a review committee consisting of the ensemble director involved, the advisor, the major teacher, and a representative from the music department. The committee meets regularly at the end of each early registration period.
Admission

Before applicants are considered for admission, they must submit the following materials in their indicated areas of concentration, as follows:

Compilation—representative musical scores: Theory—analyses 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 pass an oral exam in at least two full-length recitals or programs (25401 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 successfully, 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: 25:148-152, or 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 advisor (see previous list of major ensembles). During the summer semester, students should be available for ensemble participation as needed. Keyboard majors may substitute accomplishment in place of a major ensemble, at the advisor'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:

Compilation—representative musical scores:
Theory—analyses or research papers
Music education—research papers
Musicology—research papers and audition
Performance (including conducting)—audition
Music history and musicology—research papers, theses

Graduate Awards

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 abnormal interest in it include 25:13-14 Masterpieces of Music; 25:129 (last Eighteenth- and Nineteenth-Century Composers); 25:160 Early Eighteenth- and Twentieth-Century Counterpoint; the sequence 25:109-110 World Music I-II; for students interested in non-Western music and 25:10 Fundamentals of Music. 25:154 Beginning Folk 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 1969 with a grant from The Rockefeller Foundation, the center provides opportunities for skilled musicians to form a nucleus ensemble for the purpose of performing twentieth-century music. As a vital ingredient of the School of Music's composition program, the Center for New Music functions as a research and performance laboratory for staff and students and as a performance ensemble for the continued performance of new music.

Facilities

The University of Iowa College of the Arts has one of the nation's finest facilities for teaching and performance in music. In addition to class and seminar rooms, the Music Building includes 55 teaching studios. 73 practice rooms, a large library, two electronic music laboratories, ear training and listening facilities with 56 listening posts, four large rehearsal halls, antique solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with ansmat and five microcomputers, eight practice and recital organs, and the 700-seat Clapp Recital Hall. Hatchell Auditorium seats 2,000 people for concerts and 2,400 for operas and other stage productions.

Resources of the Rita Benton Music Library includes more than 60,000 volumes of music and books; some 3,000 titles in microform; over 14,000 sound recordings.
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(including compact discs and videotapes); and 300 current periodicals in several languages. The collection of reference material 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 200 people and are supplemented by 250 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
25:06 Cooperative Education Internship 6 s.h.
25:08 Introduction to Music 3 s.h.
25:53 Honors Seminar of Music 3 s.h. (May be repeated.) 25:18 from the late eighteenth through the twentieth centuries.
25:54 Masterpieces of Music 3 s.h. Major composers from the early eighteenth century and 100 to 120 in the program.

Theory and Composition
25:03 Literature and Theory I 3 s.h. Listening, writing, and singing skills, rudiments of music and fundamentals of harmony. Conductive. 25:03-
25:03 Literature and Theory II 3 s.h. Conductive of 25:03. Conductive 25:04-
25:07 Audion Skills I 1 s.h.
25:07 Audion Skills II 1 s.h.
25:20 Literature and Theory III 3 s.h. Harmony, counterpoint, and major practices from the Baroque to the Romantic period. Conductive. 25:03 and 25:04 Conductive. 25:07-
25:20 Literature and Theory IV 4 s.h. Conductive of 25:20, which is in conductive. Conductive 25:07-
25:15 Audion Skills III 1 s.h.
25:16 Audion Skills IV 1 s.h.
25:20 Fundamentals of Music 3 s.h. Musical notation: diatonic modal, rhythm, and harmonic theory; basic music skills; students with little or no previous background may open to music students. 25:01 Elementary Theory I 1 s.h.
25:09 UndergraduateComposition 2 s.h.
25:10 Letts Sing 3 s.h.
25:10 Bachelor Thesis 4 s.h. Required of composition theory and music theory majors. Must be completed by senior. 25:15 Conducted Forms 4 s.h. Writing and analysis. Prerequisite: 25:03 or equivalent.
25:1611 Conductive of 25:16. Conductive 25:01-
25:16 Analysis of Music Literature, 1600-1750 3 s.h. May be repeated. Offered spring semester. Prerequisite: 25:01 or equivalent.
25:1594 Analysis of Music Literature, 1600-1750 3 s.h.
25:1095 Analysis of Music Literature, 1600-1750 3 s.h.
25:1096 Analysis of Music Literature, 1600-1750 3 s.h.
25:1097 Analysis of Music Literature, 1600-1750 3 s.h.
25:1098 Analysis of Music Literature, 1600-1750 3 s.h.
25:1099 Analytical and Practice Teaching Basic Theory Knowledge of music theories—harmonic, historical, etc.; involves individual, pedagogical skills and techniques, including conductive-skill instruction. 25:194 Seminar: Music Theory Research 1 s.h.
25:195 Introduction to Counterpoint Analysis and Theory 1 s.h. Students are introduced to various methods of analysis and writing study, including methods of music literature, and techniques and history of music literature. Survey of various analytical systems and parameters (Chromatic, Linear, Modal, chord, form, etc.). Prerequisite: majors practice in the study of all genres and styles of Western music. 25:194 History of Music Theory I 2 s.h.
25:195 History of Music Theory II 2 s.h.
25:196 Electronic Music I 1 s.h. Theory, history, and use of equipment in electronic music study. Prerequisite: 25:01 or consent of instructor.
25:197 Electronic Music II 1 s.h. Advanced electronic studio work. May be repeated. Prerequisite: 25:196 or consent of instructor.

Historical Surveys and Musicology
25:15 French Music and Art: 1805 to World War I 3 s.h.
25:1551 Historical and Practice Teaching Basic Theory 1 s.h.
25:1552 Historical and Practice Teaching Basic Theory 1 s.h.
25:1553 French Music and Art: 1805 to World War I 3 s.h.
25:1554 Historical and Practice Teaching Basic Theory 1 s.h.
25:1555 Historical and Practice Teaching Basic Theory 1 s.h.
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25:1606 Historical and Practice Teaching Basic Theory 1 s.h.
25:1607 Historical and Practice Teaching Basic Theory 1 s.h.
25:1608 Historical and Practice Teaching Basic Theory 1 s.h.
25.10 Advanced Instrumental Methods and Literature I 5.0 cr.
25.11 Advanced Music Methods and Literature II 5.0 cr.
25.12 Advanced Band Methods and Literature III 5.0 cr.
25.13 Advanced Choral Conducting I 5.0 cr.
25.14 Advanced Theory II 3.0 cr.
25.15 Advanced Voice II 3.0 cr.
25.16 Advanced Composition II 5.0 cr.
25.17 Advanced Orchestration II 5.0 cr.
25.18 Advanced Conducting II 5.0 cr.
25.19 Advanced Organ II 5.0 cr.
25.20 Advanced Lectures and Seminars 5.0 cr.
25.21 Special Studies in Music Therapy 2.0 cr.
25.22 Special Studies in Music Education 2.0 cr.
25.23 Special Studies in Music Management 2.0 cr.
25.24 Special Studies in Music Technology 2.0 cr.
25.25 Special Studies in Musicology 2.0 cr.
25.26 Special Studies in Music History 2.0 cr.
25.27 Special Studies in Music Theory 2.0 cr.
25.28 Special Studies in Music Performance 2.0 cr.
25.29 Special Studies in Music Composition 2.0 cr.
25.30 Special Studies in Music Pedagogy 2.0 cr.
25.31 Special Studies in Music Administration 2.0 cr.
25.32 Special Studies in Music Business 2.0 cr.
25.33 Special Studies in Music Law 2.0 cr.
25.34 Special Studies in Music Psychology 2.0 cr.
25.35 Special Studies in Music Sociology 2.0 cr.
25.36 Special Studies in Music Anthropology 2.0 cr.
25.37 Special Studies in Music Ethnomusicology 2.0 cr.
25.38 Special Studies in Music Ethnology 2.0 cr.
25.39 Special Studies in Music Archival Studies 2.0 cr.
25.40 Special Studies in Music Performance Practice 2.0 cr.
25.41 Special Studies in Music Recording Arts 2.0 cr.
25.42 Special Studies in Music Technology 2.0 cr.
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25.53 Special Studies in Music Psychology 2.0 cr.
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25.55 Special Studies in Music Ethnology 2.0 cr.
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25.101 Special Studies in Music Aesthetics 2.0 cr.
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25.138 Special Studies in Music Psychology 2.0 cr.
25.139 Special Studies in Music Ethnomusicology 2.0 cr.
25.140 Special Studies in Music Ethnology 2.0 cr.
25.141 Special Studies in Music Archival Studies 2.0 cr.
25.142 Special Studies in Music Performance Practice 2.0 cr.
25.143 Special Studies in Music Recording Arts 2.0 cr.
25.144 Special Studies in Music Technology 2.0 cr.
25.145 Special Studies in Music Business Administration 2.0 cr.
25.146 Special Studies in Music Entrepreneurship 2.0 cr.
25.147 Special Studies in Music Finance 2.0 cr.
25.148 Special Studies in Music Economics 2.0 cr.
25.149 Special Studies in Music Policy 2.0 cr.
25.150 Special Studies in Music Law 2.0 cr.
25.151 Special Studies in Music Ethics 2.0 cr.
25.152 Special Studies in Music Aesthetics 2.0 cr.
Nuclear Medicine Technology

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Philosophy

In addition to prerequisites listed for individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of 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 170 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 and 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 that the dissertation is completed. Candidacy for the doctoral programs 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.
Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. Also required is a writing comprehension examination consisting of a dissertation area examination, a special area examination, and a prospectus of the dissertation. The comprehensive examination may be taken only after the student has shown competence in French, German, Greek, or Latin. For details consult the director of graduate studies.

Courses

For Undergraduates Only

28.1 Problems of Moral Reasoning 3.0
A philosophical foundation to ethical thought with an application of philosophical analysis for contemporary moral confrontation.

28.2 Problems of Political Philosophy 3.0
Philosophical study of the good society and the relations of the political, social, and economic.

28.27 Philosophy and Human Nature 3.0
Philosophical and historical examination of recent theories of human nature, its relations to society, knowledge, religion, science, and technology. May be taken for credit or audit.

28.34 Philosophy and Human Nature 3.0
Philosophical and historical treatment of classical theories of human nature, its relations to society, knowledge, religion, science, and technology. May be taken for credit or audit.

28.36 Philosophy of Reasoning 3.0
An introductory study of logic and its applications.

28.50 Introduction to Philosophy 3.0
An introductory study and discussion of fundamental issues and arguments in philosophy.

For Undergraduates and Graduates

28.92 Introduction to Ethics 3.0
Analytical and historical treatment to major themes about what makes the nature of goodness with the nature of right conduct.

28.93 Introduction to Symbolic Logic
Main views and basic techniques of modern logic.

28.94 Introduction to Philosophy of Science
Main issues in contemporary philosophy of science.

28.111 Analytic Philosophy
Main trends and major figures such as Augustine and Kant.

28.112 Modern Philosophy: Descartes through Leibniz
Philosophical developments in the seventeenth and eighteenth centuries.

28.117 Nineteenth-Century Philosophy
Main trends and major figures of nineteenth-century philosophy.

28.120 Twentieth-Century Philosophy
Main trends and major figures of twentieth-century analytic philosophy.

28.130 Analytic Philosophy
An introduction to the main problems of analytic philosophy.

28.131 Philosophy of History
Major problems in philosophy of the arts.

28.132 Political Philosophy
Major problems in political philosophy.

28.133 Philosophy of History
Major problems in philosophy of history.

28.134 Philosophy of Religion
Main problems in philosophy of religion. Same as 28.130.

28.135 Philosophy of Law
Same as 28.117.

28.136 Philosophy of Literature
Philosophical study of the foundations of literary meaning.

28.137 Existential Philosophy
Main issues of existence, including Kierkegaard, Nietzsche, Heidegger, and others.

28.138 Philosophy East and West
A comparative analysis of ideas in Eastern and Western philosophy.

28.139 Buddhist Philosophy
An introduction to the main views of Buddhist philosophy.

28.140 Existential Philosophy Seminar in Philosophy
A seminar in existentialism, small group discussion or selected philosophical problems. Prerequisite: consent of instructor.

28.151 Contemporary Ethics
Selected problems in contemporary theory of knowledge. Prerequisite: consent of instructor.

28.152 Philosophy of Language
Selected issues in contemporary philosophy of language. Prerequisite: consent of instructor. Same as 28.130.

28.153 Philosophy of Mind
Selected issues in contemporary philosophy of mind. Prerequisite: consent of instructor.

28.154 Analytic Ethics
Selected topics in contemporary ethics. Prerequisite: consent of instructor.

28.155 Nietzsche
An introduction to Nietzsche's thought. Prerequisite: consent of instructor.

28.156 Rousseau, Prichard, Ross
An introduction to the philosophical thought of Rousseau, Prichard, and Ross, with special attention to the topic of political theory.

28.157 World Logic
Formal systems of classical logic are developed and applied to problems in logical analysis and mental models, with the concern of related philosophical issues.

28.158 History of Mathematics
Selected topics in history of philosophy of science. Prerequisite: consent of instructor.

28.159 Topics in Philosophy
A study of philosophical issues or philosophical problems. Prerequisite: consent of instructor.

28.161 Ethics
Analysis of major ideas and major texts. Prerequisite: consent of instructor.

28.162 Aristotle
Analysis of major ideas and major texts. Prerequisite: consent of instructor.

28.163 Aquinas
An introduction to the major ideas and major texts of St. Thomas Aquinas. Prerequisite: consent of instructor.

28.164 Augustine, Descartes, and Cobb
Consideration of the philosophical views of one or more of these and, possibly some other important philosophers of the Middle Ages, some attention will be given to the aims and limits of thought in the Middle Ages. Prerequisite: consent of instructor.

28.165 Descartes
Consideration of major works, for example, the Discours de la méthode, Meditations, and Principles of Philosophy.

28.166 Thucydides and Plato
An introduction to major ideas and major texts. Prerequisite: consent of instructor.

28.167 Socrates and Aristotle
An in-depth treatment of Socrates and Aristotle and major ideas and major texts. Prerequisite: consent of instructor.

28.168 Berkeley
Immaterialism and its development. Prerequisite: consent of instructor.

28.169 Hume
An introduction to major works in a variety of areas, including epistemology, metaphysics, and ethics. Prerequisite: consent of instructor.

28.170 Kant I
An introduction to major ideas and major texts of Kant's metaphysics and epistemology. Prerequisite: consent of instructor.

28.171 Kant II
An introduction to major ideas and major texts of Kant's ethics and aesthetics. Prerequisite: consent of instructor.

28.172 Mill, Schelling, Hegel
Analysis of major ideas and major texts. Prerequisite: consent of instructor.

28.173 Brentano, Meinong, Hume
Analysis of major ideas and major texts. Prerequisite: consent of instructor.

28.174 Wittgenstein
Analysis of major ideas and major texts. Prerequisite: consent of instructor.

28.175 Penrose "The Emperor's New Mind": A Study of the Phenomenal and the Mechanistic World
Prerequisite: consent of instructor.

28.180 Readings in Philosophy
Arranged for students with interests to be announced. May be repeated to a maximum of 6 or 8 credits.

Primary for Graduates

28.201 Mathematical Logic
A presentation of central mathematical systems highlighting decidability, computability, completeness, and model theory. Treatment of second order logic. Open to undergraduates with consent of instructor.

28.202 Philosophy of the Science of Ethics
Explorations and understanding, theories and methods, values and values, and knowledge and values. Open to undergraduates with consent of instructor.

28.203 Philosophy of Science
Philosophical treatment of the history of science. Prerequisite: consent of instructor.

28.204 Philosophy of Science
Philosophical treatment of the history of science. Prerequisite: consent of instructor.

28.205 Philosophy of Science
Philosophical treatment of the history of science. Prerequisite: consent of instructor.

28.206 Philosophy of Science
Philosophical treatment of the history of science. Prerequisite: consent of instructor.

28.207 Seminar in Philosophy
May be repeated.

28.208 Seminar in Philosophy
May be repeated.

28.209 Seminar in Philosophy
May be repeated.

28.210 Seminar in Philosophy
May be repeated.

28.211 Seminar in Philosophy
May be repeated.

28.212 Seminar in Philosophy
May be repeated.

28.213 Seminar in Philosophy
May be repeated.

28.214 Seminar in Philosophy
May be repeated.

28.215 Seminar in Philosophy
May be repeated.

28.216 Seminar in Philosophy
May be repeated.

28.217 Seminar in Philosophy
May be repeated.

28.218 Seminar in Philosophy
May be repeated.

28.219 Seminar in Philosophy
May be repeated.

28.220 Seminar in Philosophy
May be repeated.

28.221 Seminar in Philosophy
May be repeated.

28.222 Seminar in Philosophy
May be repeated.

28.223 Seminar in Philosophy
May be repeated.

28.224 Seminar in Philosophy
May be repeated.

28.225 Seminar in Philosophy
May be repeated.

28.226 Seminar in Philosophy
May be repeated.

28.227 Seminar in Philosophy
May be repeated.

28.228 Seminar in Philosophy
May be repeated.

28.229 Seminar in Philosophy
May be repeated.

28.230 Seminar in Philosophy
May be repeated.

28.231 Seminar in Philosophy
May be repeated.

28.232 Seminar in Philosophy
May be repeated.

28.233 Seminar in Philosophy
May be repeated.

28.234 Seminar in Philosophy
May be repeated.

28.235 Seminar in Philosophy
May be repeated.

28.236 Seminar in Philosophy
May be repeated.

28.237 Seminar in Philosophy
May be repeated.

28.238 Seminar in Philosophy
May be repeated.

28.239 Seminar in Philosophy
May be repeated.

28.240 Seminar in Philosophy
May be repeated.
Physical Education and Dance

Chair: N. Peggy Burke
Professor of Health Science

Program Coordinator: Margaret G. Fox, M. Gaylor Smith

Associate Professors: Judith N. Allee, Susan Brown, Alysa Brooks, N. Peggy Burke, Diane L. Gill, Christine H.B. Grant, Francine Martel, Joseph L. Scalisi, Yvonne L. Banton

Assistant Professors: David Berkey, Helen Charlottess, Susan Dickinson


Degree offered: B.A., B.S., M.A., Ph.D.

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 communication. 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 specialization and sports marketing, and public school teaching and coaching. Students acquire theoretical background through anatomy, kinesiology, physiology, 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 the Catalog). They 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

Program Requirements

28.19 Orientation to Physical Education or Dance

27.11 Orientation to Physical Education

28.37 Advanced First Aid and CPR (I Red Cross Certification)

28.96 Anatomy

28.53 Human Anatomy

28.81 Kinesiology

27.107 Biomechanics of Physical Education

28.50 Measurement

28.106 Physiology of Exercise or

27.141 Exercise Physiology

28.107 Physical Education for the Handicapped

27.106 Physical Education for Special Students

28.120 Administration of Physical Education and Athletics or

27.103 Administration and Curriculum in Physical Education

28.142 Contemporary Issues of Health Education

Skill Techniques Requirements. Physical Education Majors must complete the following requirements: basketball, volleyball, softball, field sports, intermediate level team sports, hiking and apparatus, track and field, racquet sports, swimming, intermediate level individual activity, field and square dance, and modern dance or jazz. 

Pre-Requisite: 72.120.

Students must complete all courses in option A or B.

Option A: Physical Education and Athletic Emphasis

28.26 Laboratory in Teaching of Sports

28.27 Teaching of Dance

28.803 Psycho-Social Dimensions of Sport

28.121 History and Philosophy of Physical Education

Option B: Dance Emphasis

28.114 Dance History, Primitive Nineteenth Century

28.115 Twentieth-Century Dance

28.73 Composition I

28.74 Composition II

28.29 Rhythmic Analysis of Dance

28.126 Dance Production

7E.125 Methods and Materials of Teaching Children’s Dance

28.125 Advanced dance technique courses

Professional Education Requirements

7W.92 Introduction to Music Education for Teachers

7S.72 Methods and Materials in Elementary Physical Education

7S.75 Educational Psychology and Measurement

7S.76 Introduction to Teaching Physical Education

7S.161 Issues in Education

7S.165 Methods of Secondary Physical Education

7S.170 Human Relations for the Classroom Teacher

7S.176 Senior: Curriculum and Student Teaching

7S.170 Observations and Laboratory Practice in an Secondary School

7S.102 Laboratory Practice in Elementary School

7S.106 Practicum (optional)

Physical Education and Sport Program (non-teaching)
Coaching Practicum
70:198 Coaching Practicum 1.5 s.h.
*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.

\( \text{Health Education Endorsement Program} \)

The following sequence of courses meets the requirements for Iowa Area I 4102 for both the Elementary Endorsement 01 and the secondary Endorsement 20. Students must complete a minimum of 20 semester hours to fulfill this area requirement.

28:37 Advanced First Aid and CPR 2 s.h.

27:56 First Aid and CPR 0.5 s.h.

Red Cross Certifications in First Aid and CPR

Program Leading to Coaching Endorsement

Theory of Coaching
28:14 Theory of Coaching 2 s.h.
or

28:218 Advanced Coaching 2 s.h.

Development
28:71 Growth and Motor Development 2 s.h.
or

17:19 Growth and Development of the Young Child 3 s.h.
or

27:106 Child Development 3 s.h.

Anatomy
26:80 Anatomy 3 s.h.
or

27:53 Human Anatomy 3 s.h.

Exercise Physiology
28:106 Physiology of Exercise 3 s.h.
or

27:141 Exercise Physiology 3 s.h.

Advanced First Aid and CPR
28:37 Advanced First Aid and CPR 2 s.h.
or

27:56 First Aid and CPR 2 s.h.
or

Red Cross Certifications

Care and Prevention of Athletic Injuries
(Should be taken following anatomy and physiology)
27:57 Basic Athletic Training 3 s.h.
or

28:105 Care of Athletic Injuries 3 s.h.

Administration of Physical Education and Athletics
27:103 Administration and Curriculum in Physical Education 3 s.h.
or

28:120 Administration of Physical Education and Athletics 2 s.h.

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 over 400 master's and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service to 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 assumes previous education in the respective fields. A program is planned individually with consideration given to the student's previous education and anticipated career. Completion of the undergraduate degree usually leads to teaching, research, coaching, administration, or supervision in a school or university.

The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of available research areas. Many courses are offered at the graduate level, and great emphasis is placed on research training and an understanding of current issues in helping to obtain various degrees.

Graduate students work primarily in the Department of Physical Education and Dance, but resources of the entire University are available as needed. Work outside the department provides a broad view and enrichment for the selected specialization of the master's and doctoral candidate.

The most common areas of specialization have been administration of athletics and
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 credits for the dissertation.

Prerequisites

Competence in the areas tested under the M.A. program also is required for doctoral programs. Deficiencies in these areas must be remedied 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 completing 3 semester hours as approved by the departmental graduate committee.

Required Courses

28.303 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 1-2 s.h.

Specialization

Students must complete a specialization of 30 semester hours, including dissertation; they also must take satisfactory 20 semester hours in one or more departments other than physical education.

The following specialization areas have been approved: administration of physical education and athletics, measurement and evaluation, psychology of sport, sociology of sport, sport communication, or women in sport. Students interested in other specialization areas 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 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 3 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.
28.40 Anatomy 3 s.h.
28.81 Kinesiology 3 s.h.
28.114 Dance History: Primitive Nineteenth Century 3 s.h.
28.115 Twentieth-Century Dance 3 s.h.
28.113 Composition III 3 s.h.
28.116 Composition IV 3 s.h.
28.177 Beginning Labanotation 3 s.h.
28.165 Opera Dance Theatre Production 3 s.h.

Electives

Eight semester hours from the following:

28.181 Independent Study 1-2 s.h.
28.111 Methods and Materials of Teaching Children's Dance 2-3 s.h.
28.113 Ballet Practice 1-2 s.h.
28.12 Ballet Pedagogy 3 s.h.
28.122 Workshop: Artist in Residence 1-4 s.h.
28.130 Improvisation 1 s.h.
28.138 Teaching of Modern Dance 3 s.h.
28.170 Readings in Dance 1-4 s.h.
28.175 Dance Theory 3 s.h.
28.176 Criticism of Dance 3 s.h.
28.178 Intermediate Labanotation 3 s.h.
28.181 Dance Performance 0-1 s.h.
28.191 Independent Choreography 1-4 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 as a declared major. Eighteen semester hours must be earned in dance technique classes from the following:

28.10 Tap 1-2 s.h.
28.15 Jazz and Tap Continuation 1-2 s.h.
28.168 Modern Dance I 1-2 s.h.
28.169 Beginning Ballet 1-2 s.h.
28.11 Beginning Ballet 1-2 s.h.
28.12 Low Intermediate Ballet 1-2 s.h.
28.14 Intermediate Training for the Male Dancer 1-2 s.h.
28.10 Major Ballet I 1-2 s.h.
28.10 Beginning Jazz 1-2 s.h.
28.251 Continuing Jazz 1-2 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

282:22 Low Intermediate Jazz 1-2 s.h.
282:30 Beginning Modern Dance 1-2 s.h.
282:31 Continuing Modern Dance 2 s.h.
282:32 Low Intermediate Modern Dance 1-2 s.h.
282:38 Major Modern Dance II 1-3 s.h.
282:109 Major Modern Dance III 1-3 s.h.
282:110 Major Ballet I 1-3 s.h.
282:115 Major Ballet II 1-3 s.h.

Within the required 18 semester hours of dance technique, a minimum of two consecutive semesters must be taken from 282:107, 282:108, 282:109, or 282:110. Also required is a minimum of one semester of tap and jazz technique.

Dance Education

See the B.S. in physical education (dance specialization) program.

Courses

Physical Education—Primarily for Undergraduates

181:10 Elective Physical Education 1 s.h.
181:200 On-the-Field Physical Education 1 s.h.
181:246 Theory of Coaching 1 s.h.
181:116 Advanced Life Saving 1 s.h.
181:117 Water Safety Instructor 1 s.h.
181:206 Lifeguard Certification 1 s.h.
181:108 Orchestral Conducting 1 s.h.
181:109 Orchestral Conducting 2 s.h.
181:110 Orchestral Conducting 3 s.h.

Study of the pedagogy of physical education or dance and related disciplines, seminar approach with goals, theoretical, and practical applications. Discussed.

282:05 Teaching of Sports 1 s.h.
282:15 Laboratory in Teaching of Sports 1.5 s.h.
Practical application of theory and concepts in teaching of sports, working with instructors in skill classes. Prerequisite: 282:105.

282:15 Teaching of Dance 1 s.h.
282:20 Laboratory in Teaching of Dance 1 s.h.
282:25 Laboratory in Teaching of Dance 1.5 s.h.
Methods for teaching dance, including technique, creativity, folklore, and choreography. Prerequisite: 282:15.

282:22 Officiating 1 s.h.
282:23 Officiating 1 s.h.

282:23 Officiating 1 s.h.

282:27 Advanced First Aid and CPR 1 s.h.

Facilities

Gymnastics, dance studios, special equipment rooms, and pools are used in the various programs in Ballet Gymnastics, North Hall, the Field House, the Recreation Building, and the recreation area at the Iowa Memorial Union. A field for outdoor sports is near Iowa Gymnastics. The proximity of the Iowa River makes canoeing instruction feasible in a regular class schedule. The archery range is located along the river in a rustic setting, outdoor fields and a track are available. The University golf course is used for some classes.

181:49 Tennis 1 s.h.
181:45 Golf 1 s.h.
181:45 Badminton 1 s.h.
282:45 Volleyball 1 s.h.
282:44 Archery 1 s.h.
281:45 Ballroom Dance 1 s.h.
281:45 Sports 1 s.h.
281:45 Softball 1 s.h.
281:45 Basketball 1 s.h.
281:45 Rhythmic Exercise for Exercise Programs 1 s.h.

Prereq. of course in criminal justice, physical education, or psychology.

281:45 Sailing 1 s.h.
281:45 Sailing 1 s.h.
281:45 Ice Skating 1 s.h.
281:45 Swimming 1 s.h.
281:45 Swimming 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.
281:45 Tennis 1 s.h.

The faculty represents diverse backgrounds and specializations, their abilities and interests are complementary. Most faculty members hold advanced degrees, several having educational backgrounds from abroad, and all are experienced teachers. Graduate faculty members have experience in research and writing and are available to guide graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called on for lectures, speeches, and research presentations.
Physical Education—for Undergraduates and Graduates

28.051 Computer Uses in Physical Education 5.0 x 5.0
28.052 Fitness Assessment Laboratory 3.0 x 3.0
Experience in measurement of health-related components of physical fitness; opportunities for supervised work in Physical Education Skills Program at Boston Health Services. Prerequisites: 28.048 or equivalent, and consent of instructor.

28.101 Psychological Research on Women in Sport 3.0 x 3.0
Psychological considerations, responses to training and testing factors specific to pregnancy, child-bearing, and gender-related injuries.Same as 131.112.

28.102 Psychology of Coaching 2.5 x 2.5
Application of psychological principles to athletic and coaching situations; topics include competition, motivation, cooperation, and anxiety in athletics.

28.103 Care of Athletic Injuries 2.5 x 2.5
Prevention and treatment of sport injuries. Prerequisite: 28.048 or equivalent.

28.104 Exercise Physiology 3.0 x 3.0
Physiological effects of exercise and lack of exercise. Methods of conditioning for various exercise programs.

28.105 Physical Education for the Handicapped 3.0 x 3.0
Experiences with disabled children and their effect on the development of sport and recreation programs for physically handicapped children. Some lecture, some laboratory.

28.106 Principles of Athletic Administration 3.0 x 3.0
Study of intercollegiate athletics to gain educational value for the participant.

28.108 Coaching 3.0 x 3.0
Selection of skilled players; analysis and coaching techniques.

28.112 Working Sport Studies 4.0 x 4.0

28.114 Mental Training for Peak Performance 3.0 x 3.0

28.115 Adapting Physical Education Activities for the Elderly 3.0 x 3.0
Experiences possible adaptation of indoor and outdoor activities to meet the needs of the elderly, primarily elderly adults, and exercise to accommodate disabled children.

28.116 Psychological Review for the Physical Educator 4.0 x 4.0
Review of topics below for coeducational classes at all age levels in educational and recreational settings. Includes personal and group sport experiences, exercise for sports conditioning, life sciences, ball games, hygiene, exercise testing, and athletic training.

28.117 Against Athletes 3.0.x 3.0
Prerequisite: 28.048 or equivalent.

28.119 Methods of Secondary Physical Education 3.0 x 3.0
Overview of the teaching-learning process in physical education; emphasis on teaching styles and principles of motor learning. Offered fall semester. (Same as 28.049)

28.121 History and Philosophy of Physical Education 3.0 x 3.0
The history of physical education and sport from primitive civilizations through America in the twentieth century. Emphasis on the development of public school physical education programs.

28.122 Town and Field Athletics 3.0 x 3.0
Same as 28.112.

28.123 Methods of Coaching 3.0 x 3.0
Philosophy, basics of coaching, and theoretical and practical applications.

28.125 Preventive & Adult Fitness 3.0 x 3.0
Emphasis on applying knowledge of basic principles of preventive medicine, complications of physical fitness, measurement of physical fitness, and principles for designing major athletic programs for the healthy adult. Prerequisite: 28.048 or equivalent.

28.126 Adaptation of Fitness/Wellness Programs 3.0 x 3.0
Program planning, development of instructional materials, public relations, and financial management of limited-facility sport programs in private, corporate, and agency settings. Prerequisite: 28.048 or equivalent.

28.127 First Aid Instructors’ Training 3.0 x 3.0
Leads to certification as an American Red Cross First Aid Instructor. Prerequisites: current American Red Cross First Aid, CPR, and AED certification.

28.128 Contemporary Issues of Health Education 3.0 x 3.0
Principles and practices of teaching health-related activities, nutrition, adolescent health, sexuality, communicable diseases, and trends in current health issues of the time.

28.146 Brando and Administrators of School Health Programs 3.0 x 3.0
Emphasis on administration of health education programs, trends in current health education curriculum, and current methods and programs implemented with special populations. Prerequisites: 28.048 or equivalent.

28.148 Contemporary Issues of Health Education 3.0 x 3.0
Principles and practices of teaching health-related activities, nutrition, adolescent health, sexuality, communicable diseases, and trends in current health issues of the time.

28.150 Principles of Athletic Administration 3.0 x 3.0
Study of intercollegiate athletics to gain educational value for the participant.

28.155 Coaching 3.0 x 3.0
Selection of skilled players; analysis and coaching techniques.

28.156 Working Sport Studies 4.0 x 4.0

28.158 Mental Training for Peak Performance 3.0 x 3.0

28.160 Adapting Physical Education Activities for the Elderly 3.0 x 3.0
Experiences possible adaptation of indoor and outdoor activities to meet the needs of the elderly, primarily elderly adults, and exercise to accommodate disabled children.

28.162 Psychological Review for the Physical Educator 4.0 x 4.0
Review of topics below for coeducational classes at all age levels in educational and recreational settings. Includes personal and group sport experiences, exercise for sports conditioning, life sciences, ball games, hygiene, exercise testing, and athletic training.

28.177 Against Athletes 3.0 x 3.0
Prerequisite: 28.048 or equivalent.

28.179 Methods of Secondary Physical Education 3.0 x 3.0
Overview of the teaching-learning process in physical education; emphasis on teaching styles and principles of motor learning. Offered fall semester. (Same as 28.049)

28.181 History and Philosophy of Physical Education 3.0 x 3.0
The history of physical education and sport from primitive civilizations through America in the twentieth century. Emphasis on the development of public school physical education programs.

28.182 Town and Field Athletics 3.0 x 3.0
Same as 28.112.

28.183 Methods of Coaching 3.0 x 3.0
Philosophy, basics of coaching, and theoretical and practical applications.

28.185 Preventive & Adult Fitness 3.0 x 3.0
Emphasis on applying knowledge of basic principles of preventive medicine, complications of physical fitness, measurement of physical fitness, and principles for designing major athletic programs for the healthy adult. Prerequisite: 28.048 or equivalent.

28.186 Adaptation of Fitness/Wellness Programs 3.0 x 3.0
Program planning, development of instructional materials, public relations, and financial management of limited-facility sport programs in private, corporate, and agency settings. Prerequisite: 28.048 or equivalent.

28.187 First Aid Instructors’ Training 3.0 x 3.0
Leads to certification as an American Red Cross First Aid Instructor. Prerequisites: current American Red Cross First Aid, CPR, and AED certification.

28.188 Contemporary Issues of Health Education 3.0 x 3.0
Principles and practices of teaching health-related activities, nutrition, adolescent health, sexuality, communicable diseases, and trends in current health issues of the time.

28.190 Principles of Athletic Administration 3.0 x 3.0
Study of intercollegiate athletics to gain educational value for the participant.
20-015 Major Ballet I 3.5 a.h.
20-15 Beginning Ballet Technique, may be repeated. 
20-20 Beginning Ballet 1.5 a.h.
20-25 Beginning Ballet Technique, may be repeated. 
20-30 Intermediate Ballet Technique, may be repeated. 
20-35 Intermediate Ballet 1.5 a.h.
20-40 Intermediate Ballet Technique, may be repeated. 
20-45 Beginning Modern Dance 1.5 a.h.
20-50 Intermediate Modern Dance Technique, may be repeated. 
20-55 Major Ballet III 1.5 a.h.
20-60 Major Modern Dance Technique, may be repeated. 
20-65 Intermediate Modern Dance 1.5 a.h.
20-70 Beginning Musical Theatre 1.5 a.h.
20-80 Beginning Musical Theatre Technique, may be repeated. 
20-85 Beginning Musical Theatre 1.5 a.h.
20-90 Beginning Musical Theatre Technique, may be repeated. 
20-100 Beginning Musical Theatre 1.5 a.h.
20-110 Beginning Musical Theatre Technique, may be repeated. 
20-120 Beginning Musical Theatre 1.5 a.h.
20-130 Beginning Musical Theatre Technique, may be repeated. 
20-140 Beginning Musical Theatre 1.5 a.h.
20-150 Beginning Musical Theatre Technique, may be repeated. 
20-160 Beginning Musical Theatre 1.5 a.h.
20-170 Beginning Musical Theatre Technique, may be repeated. 
20-180 Beginning Musical Theatre 1.5 a.h.
20-190 Beginning Musical Theatre Technique, may be repeated. 
20-200 Beginning Musical Theatre 1.5 a.h.
20-210 Beginning Musical Theatre Technique, may be repeated. 
20-220 Beginning Musical Theatre 1.5 a.h.
20-230 Beginning Musical Theatre Technique, may be repeated. 
20-240 Beginning Musical Theatre 1.5 a.h.
20-250 Beginning Musical Theatre Technique, may be repeated. 
20-260 Beginning Musical Theatre 1.5 a.h.
20-270 Beginning Musical Theatre Technique, may be repeated. 
20-280 Beginning Musical Theatre 1.5 a.h.
20-290 Beginning Musical Theatre Technique, may be repeated. 
20-300 Beginning Musical Theatre 1.5 a.h.
20-310 Beginning Musical Theatre Technique, may be repeated. 
20-320 Beginning Musical Theatre 1.5 a.h.
20-330 Beginning Musical Theatre Technique, may be repeated. 
20-340 Beginning Musical Theatre 1.5 a.h.
20-350 Beginning Musical Theatre Technique, may be repeated. 
20-360 Beginning Musical Theatre 1.5 a.h.
20-370 Beginning Musical Theatre Technique, may be repeated. 
20-380 Beginning Musical Theatre 1.5 a.h.
20-390 Beginning Musical Theatre Technique, may be repeated. 
20-400 Beginning Musical Theatre 1.5 a.h.
20-410 Beginning Musical Theatre Technique, may be repeated. 
20-420 Beginning Musical Theatre 1.5 a.h.
20-430 Beginning Musical Theatre Technique, may be repeated. 
20-440 Beginning Musical Theatre 1.5 a.h.
20-450 Beginning Musical Theatre Technique, may be repeated. 
20-460 Beginning Musical Theatre 1.5 a.h.
20-470 Beginning Musical Theatre Technique, may be repeated. 
20-480 Beginning Musical Theatre 1.5 a.h.
20-490 Beginning Musical Theatre Technique, may be repeated. 
20-500 Beginning Musical Theatre 1.5 a.h.
20-510 Beginning Musical Theatre Technique, may be repeated. 
20-520 Beginning Musical Theatre 1.5 a.h.
20-530 Beginning Musical Theatre Technique, may be repeated. 
20-540 Beginning Musical Theatre 1.5 a.h.
20-550 Beginning Musical Theatre Technique, may be repeated. 
20-560 Beginning Musical Theatre 1.5 a.h.
20-570 Beginning Musical Theatre Technique, may be repeated. 
20-580 Beginning Musical Theatre 1.5 a.h.
20-590 Beginning Musical Theatre Technique, may be repeated. 
20-600 Beginning Musical Theatre 1.5 a.h.
20-610 Beginning Musical Theatre Technique, may be repeated. 
20-620 Beginning Musical Theatre 1.5 a.h.
20-630 Beginning Musical Theatre Technique, may be repeated. 
20-640 Beginning Musical Theatre 1.5 a.h.
20-650 Beginning Musical Theatre Technique, may be repeated. 
20-660 Beginning Musical Theatre 1.5 a.h.
20-670 Beginning Musical Theatre Technique, may be repeated. 
20-680 Beginning Musical Theatre 1.5 a.h.
20-690 Beginning Musical Theatre Technique, may be repeated. 
20-700 Beginning Musical Theatre 1.5 a.h.
20-710 Beginning Musical Theatre Technique, may be repeated. 
20-720 Beginning Musical Theatre 1.5 a.h.
20-730 Beginning Musical Theatre Technique, may be repeated. 
20-740 Beginning Musical Theatre 1.5 a.h.
20-750 Beginning Musical Theatre Technique, may be repeated. 
20-760 Beginning Musical Theatre 1.5 a.h.
20-770 Beginning Musical Theatre Technique, may be repeated. 
20-780 Beginning Musical Theatre 1.5 a.h.
20-790 Beginning Musical Theatre Technique, may be repeated. 
20-800 Beginning Musical Theatre 1.5 a.h.
20-810 Beginning Musical Theatre Technique, may be repeated. 
20-820 Beginning Musical Theatre 1.5 a.h.
20-830 Beginning Musical Theatre Technique, may be repeated. 
20-840 Beginning Musical Theatre 1.5 a.h.
20-850 Beginning Musical Theatre Technique, may be repeated. 
20-860 Beginning Musical Theatre 1.5 a.h.
20-870 Beginning Musical Theatre Technique, may be repeated. 
20-880 Beginning Musical Theatre 1.5 a.h.
20-890 Beginning Musical Theatre Technique, may be repeated. 
20-900 Beginning Musical Theatre 1.5 a.h.
20-910 Beginning Musical Theatre Technique, may be repeated. 
20-920 Beginning Musical Theatre 1.5 a.h.
20-930 Beginning Musical Theatre Technique, may be repeated. 
20-940 Beginning Musical Theatre 1.5 a.h.
20-950 Beginning Musical Theatre Technique, may be repeated. 
20-960 Beginning Musical Theatre 1.5 a.h.
20-970 Beginning Musical Theatre Technique, may be repeated. 
20-980 Beginning Musical Theatre 1.5 a.h.
20-990 Beginning Musical Theatre Technique, may be repeated. 
20-1000 Beginning Musical Theatre 1.5 a.h.
20-1010 Beginning Musical Theatre Technique, may be repeated. 
20-1020 Beginning Musical Theatre 1.5 a.h.
20-1030 Beginning Musical Theatre Technique, may be repeated. 
20-1040 Beginning Musical Theatre 1.5 a.h.
20-1050 Beginning Musical Theatre Technique, may be repeated. 
20-1060 Beginning Musical Theatre 1.5 a.h.
20-1070 Beginning Musical Theatre Technique, may be repeated. 
20-1080 Beginning Musical Theatre 1.5 a.h.
The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of the subject. 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 honors students—and 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:

- 22M25-26 Calculus I-II 8 s.h.
- 22M27 Introduction to Linear Algebra 4 s.h.
- 22M28 Calculus III 4 s.h.
- or
- 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.
- 22R42 Vector Calculus for Engineers 3 s.h.
- 22T17-18 Introductory Physics I-II 12 s.h.
- 22T14 Intermediate Mechanics 5 s.h.
- 22T16 Introductory Quantum Mechanics 5 s.h.
- 22T19 Statistical Physics 5 s.h.
- 22T20-21 Electricity and Magnetism 6 s.h.
- 22T32 Intermediate Laboratory (two semesters) 4 s.h.

Two additional courses, one of them at the 190-level, selected from:

- 22T17 Optics 4 s.h.
- 22T28 Electronics 4 s.h.
- 22T32 Intermediate Laboratory (third semester) 2 s.h.
- 22T17 Mathematical Methods of Physics 5 s.h.
- 22T19 Atomic Physics 5 s.h.
- 22T20 Elementary Particles and Nuclear Physics 5 s.h.
- 22T25 Introductory Solid State Physics 5 s.h.
- 22T54 Plasma Physics 5 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 gain a considerable knowledge of physics but do not plan to 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.
- or
- 22M17-18 Introductory Physics I-II 8 s.h.
- 22M14 Intermediate Mechanics 5 s.h.
- 22M18 Statistical Physics 5 s.h.
- 22M19 Atomic Physics 5 s.h.
- 22M12 Electricity and Magnetism 5 s.h.
- 22M13 Intermediate Laboratory (two semesters) 4 s.h.

As additional 12 semester hours or more of science in 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 29119 and all 300-level physics courses.

Bachelor of Science in Astronomy

A balanced and integrated program of astronomy, 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.
- or
- 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.
- or
- 22M24 Vector Calculus for Engineers 3 s.h.
- 22T14 Intermediate Physics I 12 s.h.
- 22T20-21 Electricity and Magnetism 6 s.h.
- 22T25 Introductory Quantum Mechanics 3 s.h.
- 22T25-26 Introduction to Astrophysics I 6 s.h.
- 22T20-21 Electricity and Magnetism 6 s.h.
- 22T25-26 Calculus I-II 8 s.h.
- 22T32 Intermediate Laboratory (two semesters) 4 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements listed above as feasible, by taking one or more of the following courses:

- 22T17 Optics 3 s.h.
- 22T18 Stellar Physics 3 s.h.
- 22T19 Introduction to Astrophysics III 3 s.h.
- 22T32 Astronomical Laboratory (additional semester) 2 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 II-II
- 22M:33-36 Engineering Calculus III
- 29-154 Introductory Physics I-II
- 29-114-12 College Physics

and

- 29-155 Intermediate Physics III
- 29-156-62 General Astronomy
- 29-115 Intermediate Mechanics
- 29-117 Optics
- 29-114 Statistical Physics
- 29-115-120 Introduction to Astrophysics I-II
- 29-128 Electronics
- 29-129 Electricity and Magnetism
- 29-132 Intermediate Laboratory
- 29-137 Astronomical Laboratory

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:

- 29-110-121 Introduction to Astrophysics I-II
- 29-135 Astrometric Laboratory

An additional 6 semester hours of these courses of 120-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. These courses in such a combination should omit with their advisors the usual requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.

Honors

Selected junior and senior majors may take 6-8 semester hours of 299 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 or in a dissertation in astronomy or astrophysics. As M.S. degree 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 Catalog).

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 after passing a qualifying examination in all principal areas of physics or astronomy 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 acts as 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 terminal or intermediate toward a Ph.D. degree. The final examination in either case is oral, conducted by a committee of three members of the Graduate College 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 of the minimum 30 semester hours may be for research (29-201 Research Projects).

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 (29-225 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.

Conditions for either of the M.S. degree programs must have satisfactorily completed the following courses or their equivalents as an undergraduate or a graduate:

- 29-115 Intermediate Mechanics
- 29-116 Introductory Quantum Mechanics
- 29-117 Optics
- 29-116 Statistical Physics
- 29-128-130 Electricity and Magnetism

- 29-133 Advanced Laboratory (two semesters)
- 29-171-172 Mathematical Methods of Physics
- 29-191 Atomic Physics

Two additional courses selected from:

- 29-102 Elementary Particles and Nuclear Physics
- 29-191 Introductory Solid State Physics
- 29-194 Nuclear Physics

The student's plan of study should provide for as much advanced work as possible and previous permission.

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
- 29-116 Introductory Quantum Mechanics
- 29-117 Optics
- 29-116 Statistical Physics
- 29-128-130 Electricity and Magnetism

- 29-133 Advanced Laboratory
- 29-137 Astronomical Laboratory
- 29-171-172 Mathematical Methods of Physics
- 29-191 Atomic Physics
- 29-194 Plasma Physics

A student who intends to continue for a Ph.D. in physics with an astrophysics specialization should take the following courses as early as in the master's program as possible:

- 29-195 Plasma Physics
- 29-223-223 Theoretical Astrophysics I-II
- 29-224 Stellar Structure and Evolution
- 29-225 Special Topics in Astrophysics
Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. Two Vax computers are available within the department, and the associated facilities of the University’s Engineering 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, high energy nuclear physics, plasma physics, and solid state physics. A major experimental space physics program is conducted in the department. Extensive 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 6.5-MW Van de Graaff accelerator, which has been modified for energies up to 16 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. Experimental work on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds is included in the experimental solid state program, as are studies of surface films and semiconductors. Several experimental plasma devices, including arc-jet machines, are used to study confinement, nonlinear waves, and turbulence phenomena 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 out 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 Interferometer 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 Giff Pit Experimental Optical Observatory, the Arecibo Observatory, and the high altitude 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 guides 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 254, 258, 256, 252, 251, 252, and 258 are accepted toward the College of Liberal Arts General Education Requirement in the natural sciences.

Physics—Primarily for Undergraduates

254 Dynamics of a Point 3 s.h.
255 Electricity and Magnetism 3 s.h.
256 Vectors and Matrices 3 s.h.
257 General Physics I 3 s.h.
258 General Physics II 3 s.h.
259 General Physics III 3 s.h.
260 Topics in Physics 3 s.h.
261 College Physics 3 s.h.
262 College Physics 4 s.h.
263 College Physics 4 s.h.
264 College Physics II 3 s.h.
265 Modern Physics I 3 s.h.
266 Modern Physics II 3 s.h.
267 Modern Physics III 3 s.h.
268 Modern Physics IV 3 s.h.
269 Theory of Relativity 3 s.h.
270 Advanced Modern Physics 3 s.h.
271 Advanced Modern Physics 3 s.h.
272 Quantum Mechanics I 3 s.h.
273 Introduction to Molecular Physics 3 s.h.
274 General Physics I 3 s.h.
275 General Physics II 3 s.h.
276 General Physics III 3 s.h.
277 General Physics IV 3 s.h.
278 General Physics V 3 s.h.
279 General Physics VI 3 s.h.
280 General Physics VII 3 s.h.
281 General Physics VIII 3 s.h.
282 General Physics IX 3 s.h.
283 General Physics X 3 s.h.
284 General Physics XI 3 s.h.
285 General Physics XII 3 s.h.
286 General Physics XIII 3 s.h.
287 General Physics XIV 3 s.h.
288 General Physics XV 3 s.h.
289 General Physics XVI 3 s.h.
290 General Physics XVII 3 s.h.
291 General Physics XVIII 3 s.h.
292 General Physics XIX 3 s.h.
293 General Physics XX 3 s.h.
294 General Physics XXI 3 s.h.
295 General Physics XXII 3 s.h.
296 General Physics XXIII 3 s.h.
297 General Physics XXIV 3 s.h.
298 General Physics XXV 3 s.h.
299 General Physics XXVI 3 s.h.
300 General Physics XXVII 3 s.h.
301 General Physics XXVIII 3 s.h.
302 General Physics XXIX 3 s.h.
303 General Physics XXX 3 s.h.
304 General Physics XXXI 3 s.h.
305 General Physics XXXII 3 s.h.
306 General Physics XXXIII 3 s.h.
307 General Physics XXXIV 3 s.h.
308 General Physics XXXV 3 s.h.
309 General Physics XXXVI 3 s.h.
310 General Physics XXXVII 3 s.h.
311 General Physics XXXVIII 3 s.h.
312 General Physics XXXIX 3 s.h.
313 General Physics XL 3 s.h.
314 General Physics XLI 3 s.h.
315 General Physics XLII 3 s.h.
316 General Physics XLIII 3 s.h.
317 General Physics XLIV 3 s.h.
318 General Physics XLV 3 s.h.
319 General Physics XLVI 3 s.h.
320 General Physics XLVII 3 s.h.
321 General Physics XLVIII 3 s.h.
322 General Physics XLIX 3 s.h.
323 General Physics L 3 s.h.
324 General Physics LI 3 s.h.
325 General Physics LII 3 s.h.
326 General Physics LIII 3 s.h.
327 General Physics LIV 3 s.h.
328 General Physics LV 3 s.h.
329 General Physics LX 3 s.h.
330 General Physics LXI 3 s.h.
331 General Physics LXII 3 s.h.
332 General Physics LXIII 3 s.h.
333 General Physics LXIV 3 s.h.
334 General Physics LXV 3 s.h.
335 General Physics LXVI 3 s.h.
336 General Physics LXVII 3 s.h.
337 General Physics LXVIII 3 s.h.
338 General Physics LXIX 3 s.h.
Astronomy—Primarily for Undergraduates

20/10 Modern Astronomy 3 cr.
Survey of astronomy, special attention to topics of current interest, such as planetary eclipses, solar activity, pictures, clocks, and clocks, cosmology, introduction to astrophysics, and problems involving. Open to freshmen.

20/41 General Astronomy 4 cr.
Descriptive lectures and study of astronomical techniques and all of components of solar system and earth, oceans, geology and plate and satellites, variable stars, comets, meteors, and asteroids. Special topics will be included. Those who have had prior exposure to the field may have their credit approved by the Astronomy Program.

20/61 Special Topics in Astronomy 3 cr.
Offered to students in cooperation with graduate programs. Open to freshmen. May be taken for 2 cr. as a part of 220. Prerequisites: at least one year each of high school algebra and geometry.

20/64 Reading in Astronomy 3 cr.

Astronomy—for Undergraduates and Graduates

20/64 Reading in Astronomy 3 cr.

20/45 Introduction to Astrophysics I 3 cr.
Fundamentals of astrophysical processes in solar system objects, stars, galaxies, the interstellar medium, and cosmic evolution. Topics include radiation process, interstellar medium, origin of the solar system, and the evolution of the Sun. Prerequisites: PHYS 110 and 220 and MATH 200 or MATH 220 or MATH 226 and some computer programming experience is recommended.

20/52 Introduction to Astrophysics II 3 cr.
Continuation of 20/45. Prerequisites: PHYS 202 and 214 and MATH 232 or MATH 226.

20/112 Astronomical Laboratory 3 cr.
Introduction to techniques and manipulative equipment of radio and radio astronomy, radio astronomy is emphasized in the fall semester; optical astronomy in the spring. May be repeated. Prerequisites: 20/64 and consent of instructor.

Astronomy—Primarily for Graduates

20/110 Theoretical Astrophysics I 3 cr.
Radiative theory, theory of stellar atmospheres and continua, spectra of stars and white dwarfs. Prerequisite: consent of instructor.

20/112 Theoretical Astrophysics II 3 cr.
Stellar structure, nuclear, and white dwarf and giant radiative equilibrium. Continuation of 20/110.

20/236 Stellar Structure and Evolution 3 cr.
Structure of stellar interiors, evolution of stars and remnants of stars. Prerequisites: consent of instructor. Consent may be required.

20/239 Special Topics in Astrophysics 3 cr.
Advanced lectures and seminars on various astrophysical topics. May be repeated.

20/905 Seminar: Astrophysics 3 cr.
Intramural courses of current interest.

20/906 Research: Astronomy 3 cr.
Intramural research in astrophysics applied toward theses, dissertations, etc.

Political Science

Chair: John O. Bultman

Professors: Joel D. Bultman, G. Robert Beaton, Carol A. Gotham, Gary J. Fields, Jane Santer, Craig Lee King, Michael S. Lewis-Beeck, Arthur H. Miller, Russell M. Ross, Peter G. Snow

Associate professors: Douglas E. Madsen, Steven A. Muehl, John J. Mullen

Assistant professors: Gary R. Conkling, Richard L. Johnson, William R. Ristler, Prentice Squire

Instructor: Deborah J. Hiil

Professors emeriti: Henry E. Kebo, Vernon B. Varble

Degrees offered: B.A., 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 the following areas: 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 cr.
30:2 Introduction to Politics 3 cr.

It must also include two of these:

30:3 Introduction to Political Thought and Political Action 3 cr.
30:5 Introduction to Comparative Politics 3 cr.
30:6 Introduction to Political Behavior 3 cr.
30:7 Introduction to World Politics 3 cr.

It must include at least 18 semester hours in political science courses numbered 100 or above. Course 30:100 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 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:

220/25-26 Calculus I-II 8 cr.
225/102 Introduction to Statistical Methods 3 cr.
225/148 Intermediate Statistical Methods 3 cr.

Other courses may be used with the written approval of the political science director of undergraduate studies.

Teaching Major

Undergraduate planning to teach in the social sciences with an emphasis on political science must meet these requirements:

Quarter ten 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 in 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 30:100 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 Seminar. 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 numbered 100 or below may not apply 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 junior 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 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 16 months, the program is sufficiently flexible to accommodate students who may require additional time to meet degree requirements.

Fall Semester
30:222 Public Policy Analysis I 3 s.h.
30:224 Introduction to Administrative Computing 1 s.h.
62:250 Issues of the Government Sector 5 s.h.
Electives 8 s.h.

Spring Semester
30:225 Administrative Theory and Public Policy 3 s.h.
30:222 Urban Administration 3 s.h.
30:223 Public Policy Analysis II 3 s.h.
Electives 6 s.h.

Summer Session
30:391 Internships in Public Policy and Administration 3 s.h.
30:392 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. degree 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 course work 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 passing 30:351 advanced Research Methods and receiving a grade no lower than B. Any special tools or skills needed for conducting dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired before taking comprehensive examinations. Students who have not acquired these skills should consult with their faculty adviser in the first two years of P.D.D. work.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of core course 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 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 explain and defend the proposal in an oral examination, which also must deal with all matters relevant to the written examination and 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 service as a teaching or research assistant.

A comprehensive statement of departmental requirements is set forth in the Guide to Graduate Study in Political Science. For general graduate course and degree requirements, see the "Graduate College" sections of the Catalog.

Facilities

The Laboratory for Political Research provides logistical and technical support for undergraduate and graduate teaching and research programs undertaken by the Department of Political Science. The laboratory assists faculty members in analyzing 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 of graduate education in the department and is involved 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 Mini-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

30:906 Cooperative Education Training 3 s.h.
30:911 Introduction to American Politics 3 s.h.
30:916 Comparative Political Institutions is a survey of political systems and institutions, including countries, the President, the Supreme Court, parties, political groups, and the bureaucracy. The focus of the teaching and
Undergraduate Programs

The B.A. and B.S. degree programs in psychology are designed to contribute to a student's general liberal education and to provide a foundation for postbaccalaureate training in psychology and closely-related disciplines and in areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an 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 lower specific requirements and rather less 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 enroll in 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 behavior, child and developmental, clinical and social. Satisfactory completion of these requirements for either the B.A. or B.S. degree in psychology automatically satisfies the prerequisites for the hours of the General Education Requirement in social science.

The department maintains excellent facilities to support teaching and research on human and animal behavior. All faculty members are actively engaged in research and bring to their teaching a diverse background in the excitement that such activity generates. Many opportunities exist for interested and capable students to participate in research projects being carried on in the department. The department has an active undergraduate organization, the Iowa Student Psychological Association, that is open to all interested students. The group sponsors speakers, film, career days, student symposia, etc. There also is 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:

31:13 Elementary Psychological Research
31:33 General Psychology
31:43 Evaluating Psychological Research: one elective course from one of the five area electives groups below, with at least two of these area electives in 100-level courses.

The 31:43 requirement may be satisfied by a combination of 31:142 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.

Bachelors of Science

Students must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 28 in 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 31:5 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. Underclassmen who place beyond at least one pre-calculus mathematics course, students should consult with their 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 credit must be in courses numbered 31:43 or higher. The group sponsors speakers, film, career days, student symposia, etc. There also is a local chapter of Psi Chi, the national undergraduate organization of the American Psychological Association.

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
31:126 Psychobiology Psychology and Psychology

Portuguese

See "Spanish and Portuguese."

Psychology

Chair: John H. Harvey
Professors: David A. Bower, Paul Boc kindness, Willard K. Busen, George B. Busen, Deaver K. Busen, Sidney R. Busen
Associate professors: Barbara Anderson, Donna C. E. Carlin, Carolyn Croxton, Raymond H. Hol, Wayne W. Newton, Michael W. Flynn, Aurab Randh, Sue R. Ronsor
Assistant professors: Paul Quin
Degree offered: B.A., B.S., M.A., Ph.D.
Graduate Program

The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special cases, applications are considered only for the fall term. For students entering without previous graduate work, a four-course program, those entering with previous graduate training may be exempted from two to four additional years in this department, depending upon the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavors, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to prepare 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 biopsychology, child and developmental psychology, clinical psychology, cognitive psychology, health and behavioral science, and social psychology. Each entering graduate student is expected to identify one of these areas for his or her major area and to develop a program that develops through understanding of the substantive material and methods of investigation central to that specialization. While all graduate training, all students must meet course requirements in statistics, research methods, history, 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 programs have been formulated and others can be developed as interest dictates. A joint program involves mixing 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, communication, and neurobehavioral science. 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 areas.

Honors

The department has an active honors program open to majors with at least a 3.3 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.

Doctor of Philosophy

The Ph.D. degree requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 32 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 philosophy of psychology is strongly encouraged. Students also are expected to take sufficient teaching work outside the psychology training area to develop a reasonably broad background in 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 depends 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 a primary training area, and an outside area elective. Students also become familiar with the literature, research methods, 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, 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 expected to report 32 seminar hours in this department 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 M.A. project exam, and in teaching, research, and service activities.

During the third year students continue selected course work in the training and interest areas, develop a prospect for dissertation research, and prepare for the comprehensive examination. This written examination requires that the student demonstrate proficiency in various specialties 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.B. major. Students are expected to offer an oral defense of the dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

Master of Arts with Thesis

As indicated above, the department does not offer a Master of Arts with a thesis in psychology for the Ph.D. This degree requires satisfactory completion of at least 36 semester hours of graduate course work in psychology with at least 12 hours in the psychology department. The course work must include a statistics course.
Master of Arts without Thesis

The Master of Arts degree without thesis is an option available to those low students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 24 semester hours of graduate credit in psychology, including at least 12 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 Biopsychology

The focus of the program in animal learning and biopsychology is on the analysis of learning and motivation, primarily in inhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in operant and instrumental conditioning, comparative psychology, motivation, neuropharmacology, and neuroendocrinology, and development of techniques to analyze learning and motivation. The program has the opportunity to train students in the art in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurosurgery, histology, and biochemical assay. Faculty members in the animal learning and biopsychology 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 also result in developing interdisciplinary fields such as behavioral medicine and neuropsychological science.

Child and Developmental Psychology

Students in the child and developmental psychology program are expected to acquire 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 a more particular specialization in areas such as language, memory, development of social judgment, and developmental 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 in departments of Speech Pathology and Audiology, the College of Education, and the Department of Pediatrics; these relationships can be useful to students who wish to gain additional background in developmental 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 scientific 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 specialized interests in areas such as psychopathology, personality, interpersonal effectiveness, the affective disorders, behavioral and cognitive therapies, sexual deviance, and child psychopathology. Faculty members collaborate actively with colleagues from departments such as psychiatry, pediatrics, medicine, statistics and actuarial science, and from other research centers and nearby area education agencies. Partly as a consequence of such collaborative effort, clinical and behavioral medicine and aging are interest areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department joint training programs in clinical-child and developmental psychology, clinical-cognitive psychology, and clinical-heath and behavioral science, have been established. Similar joint programs combining clinical specialty with work in other specialty areas are encouraged.

Advanced students have opportunities to gain additional practicum experience through placement in clinical facilities maintained by local, state, and University agencies. Students in the clinical program who wish to have the designation "clinical psychology" on their official transcript must satisfactorily complete a one-year internship at an approved agency before receiving the doctoral degree. The internship experience comes after completion of all course work and of most, if not all, of the dissertation project.

Health and Behavioral Sciences

The health and behavioral sciences 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, neuropsychology, psychophysiology, pain, communication processes, stress, 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 apprenticeship). Students in the health and behavioral science program may acquire specialized training for research and teaching in literal areas such as cardiovascular psychophysiology and hypertension, internal health of disease, cancer, pain, several bases of language and cognitive disorders, inference making and communication regarding health status issues, 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, Neuropsychology, Ophthalmology, Podiatry, and Surgery, Pediatrics, Pharmacology, Radiology, and the Psychology and Audiology, and Surgery.

Cognitive Psychology

Students affiliated with the cognitive—

program concentrate in the broad subfields of cognitive processing, and learning. Current faculty members specialize in the following areas: learning, memory, and problem solving in children. Development, cognition, and neurolinguistics; mathematical psychology, psychophysical scaling, and signal detection theory; cognitive effects of drugs; human judgment and decision making; information processing; and psychosocial factors. Faculty members in the cognitive area are prepared to guide students in the clinical areas of expertise in a variety of interest areas, including human factors, communications, aging, and organizational and consumer behavior. Collaborative research is under way with faculty members from the College of Business Administration, the College of Health Services Research Center, and from several departments including psychology, industrial and management Engineering, Speech Pathology and Audiology, and Anesthesia.
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 training in any of five sub-areas: social development, social cognition, social influence, social identity, and social control. The program is designed to provide students with a broad base of training and to allow them to develop a strong research program in their chosen area.

Admission

The graduate program in psychology is designed to prepare students for the Ph.D. degree. All applicants are considered on the basis of merit. Occasionally, a qualified applicant interested in advanced work only through the M.A. degree may be admitted to a joint graduate program involving psychology and another discipline. Such a student should contact the department head before applying.

The deadline for applications is February 1. For Domestic students, the Graduate Record Examination (GRE) General Test is required. The GRE should be taken no later than in the fall immediately preceding the academic year in which the student wishes to begin graduate study. The deadline for applications for financial aid is February 1.

The deadline for applications for financial aid is December 1.

Financial Aid

All students admitted to the graduate training program in psychology automatically are considered, on the basis of merit, for available financial support in the form of fellowships, teaching assistantships, research assistantships, internships, and tuition scholarships. No additional application for financial aid is required.

Faculty

National rankings of graduate psychology programs consistently have shown this department to be among the top 25 in the nation. The widely recognized commitment of the faculty to research and scholarship is reflected in the publication of some 100 articles, books, reviews, and book chapters each year. Many faculty members also actively serve as editors, associate editors, and regular consulting editors for major psychology journals.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Sepe Research Laboratories of Psychology and an adjacent building, the Sepe Research Building, are among the most advanced research facilities in the country. The department's facilities are designed to provide students with the most up-to-date equipment and resources.

Courses

Primarily for Undergraduates

The University of XYZ offers a wide range of courses in psychology. Course offerings vary each semester, and students should consult the university's course catalog for the most current information.

Admission

Applicants must meet the following requirements:

- An undergraduate degree in psychology, or a related field, with a minimum GPA of 3.0
- Letters of recommendation from at least three academic or professional references
- A personal statement outlining career goals and how the program aligns with them
- Submission of the prerequisite course requirements
- A completed application form

Financial Aid

The university offers a variety of financial aid options for students, including scholarships, grants, loans, and work-study opportunities. Students are encouraged to apply for financial aid as early as possible.

Faculty

The faculty is comprised of experienced and dedicated professionals who are committed to providing a high-quality educational experience. They are actively engaged in research and are recognized in their respective fields.

Facilities

The university's facilities are designed to provide students with access to state-of-the-art resources and equipment. This includes a range of laboratories, classrooms, and computing resources.

Courses

The university offers a broad range of courses in psychology, covering various topics such as developmental psychology, cognitive psychology, social psychology, and experimental psychology. Students can choose from a variety of courses depending on their interests and career goals.

Undergraduate prerequisites: Psychology 101 (3 hours)
Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and treatment settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:

104.120 Orientation to Rehabilitation Settings
104.031 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 areas such as fitness, sales, sport management, and recreation services will find this specialization well-suited to their needs. Through an internship in commercial/industrial recreation, the student will gain recreational services and opportunities for employment in the field. The bachelor's degree also allows for flexibility and minor specialization appropriate. Students are urged to select a combination of guided electives in business, fitness, and health-related areas.

Courses required for this area of concentration are:

104.138 Health Promotions 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 program will include lectures by working professionals, as well as opportunities for field experience related to courses.

The practical experience is climax 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 100 local, state, and national agencies, organizations, and commercial entities 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 30 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:

1. 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. The remaining coursework, unless otherwise noted, 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 careers in evaluative, supervisory, and teaching positions in recreation systems and in recreation-related fields. It offers two areas of specialization: public, private, and community recreation, and therapeutic recreation administration. It may be taken with thesis (33 semester hours) or without thesis (36 semester hours). An introduction to leisure and recreation research is provided through 104.100 Leisure Research, or equivalent, and 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 municipalities, schools, voluntary agencies, churches, the armed forces, state and federal agencies, industries, private organizations, etc. The emphasis within these programs may be on special population groups, such as inner-city and poverty groups, the aged, children and youth, or upon the meaning of leisure as a social phenomenon, with study of the historical, philosophical, and social issues of leisure. Public administration and urban social planning are particular aspects of this area.

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.

A 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 in a broad range of disability areas either in a medical setting or in the community. Through the 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, psychopharmacology of adjustment, employment, the mentally retarded, and aging. The student also should have skills in a 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 the opportunity to gain considerable experience paid or voluntary, through independent research in these and other locations: The University of Iowa, Psychiatric Hospital, and Hospital Schools, The University of Iowa Division of Recreational Services, Iowa City Parks and Recreation Department, Systems Unlimited, various retirement and convalescence homes, and Coralville Department of Parks and Recreation.

Courses

Primarily for Undergraduates

104.000 Cooperative Education Internship

104.008 Foundations of Recreation
Religion/LIBERAL ARTS

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 degree 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 Dean’s List are those who 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 26 semester hours in the School of Religion. These include 6 semester hours in 32200 Methods and Theories in the Study of Religion I. Remaining hours are principally in one of these five areas of concentration: the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology and ethics; and history of Asian religions. 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. First semester 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 to 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 maximum of 12 semester hours is allowed for the dissertation.

Students qualify for the doctoral program by completing the following:

32200 Methods and Theories in the Study of Religion I;
A seminar or paper, ordinarily in the area of the student’s proposed concentration, required 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. Inquiries 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: teaching assistantships, and research assistantships. The department also may authorize eligible students for University of Iowa Fellowships. 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

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1050 on the Graduate Record Examination (GRE) Aptitude Test and a 3.0 grade-point average for admission to the M.A. program, and a score of 1100 or better on the GRE Aptitude Test and a grade-point average of 3.2 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 languages, the university offers courses in Japanese, Chinese, Sanskrit, and Hebrew. The School of Religion offers Hebrew regularly and other Semitic and Hamitic languages as optional courses. The University of Iowa has Hospitals and Clinics provide clinical opportunities for students in the M.A. program in religion and health. Individual courses on which the clinical and medical ethics also utilize hospital personnel and facilities.

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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. Applications 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. In the United States and in the Soviet Union, 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 Paulsklas 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, nonmatriculated course for Children (44:105-106) 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 course is open to students in the humanities as well. The course 44:107 Readings in the Soviet Press 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 Russian Foreign Language House in South Quad provides 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 inducted annually into Dodor House, 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

44:1 First-Year Russian I 4 sh.
44:2 First-Year Russian II 4 sh.
Prerequisite: 44:1 or equivalent.
44:3 Second-Year Russian I 4 sh.
Prerequisite: 44:2 or equivalent.
44:4 Second-Year Russian II 4 sh.
Prerequisite: 44:3 or equivalent.
44:5 Introduction to Conversational Russian 3 sh.
Not a substitute for 44:105 or 44:106.
44:6 Intermediate Conversational Russian 3 sh.
Not a substitute for 44:105 or 44:106.
44:7 Beginning Conversational Russian Workshop 3 sh.
For students who have taken the equivalent of 4 sh. of Russian language study; conversational skills on magnetic recorder and reading an accordant guide. Taught by a native speaker of Russian. Not a substitute for 44:105 or 44:106.
44:8 Advanced Conversational Russian Workshop 2 sh.
Review of phonetics and structural constraints of conversational and spoken Russian. Use of records as a basis for a course in advanced Russian language instruction. Not a substitute for any Russian language course.
44:9 Beginning Series Creation 3 sh.
44:10 Russian for Reading I 3 sh.
Emphasis on reading scientific and technical Russian literature; for students, especially those majoring in science, who need to develop a reading facility for research purposes.
44:11 Russian for Reading II 3 sh.
Prerequisite: 44:105 or equivalent.
44:12 Readings in the Soviet Press 3 sh.
Prerequisite: 2.5 or 4 sh. of language instruction or equivalent.
44:13 Special Readings 3 sh.
Prerequisite: 4 sh. of language instruction. May be repeated for credit. Limit of 8 sh.
44:14 Intensive Conversation 3 sh.
Prerequisite: 44:105 or equivalent.
44:15 Advanced Conversation 3 sh.
Prerequisite: 44:105 or equivalent.
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. Increase science education's impact on teachers in training, science program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in these various departments.

**Undergraduate Programs**

The undergraduate program in science education represents a transdisciplinary major in science for all pupils 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 advanced 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 years or four semesters of sequential study;
- Preparation in a second area of pure science, equivalent to two years or four quarters 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 areas);
- A view of science from a historical, philosophical, cultural/perspective; and
- Experience with the application of scientific knowledge in a technological sense.

Outlines for the five areas of emphasis offered in science education are as follows:

### Biology Emphasis

- **1. Introduction to Botany**
- **2. Principles of Animal Biology**
- **3. Principles of Animal Behavior**
- **4. Principles of Ecology**
- **5. Principles of Environmental Science**

### Chemistry Emphasis

- **1. Principles of General Chemistry**
- **2. Principles of Organic Chemistry**
- **3. Principles of Physical Chemistry**
- **4. Principles of Environmental Chemistry**

### Mathematics Emphasis

- **1. Calculus I**
- **2. Calculus II**
- **3. Linear Algebra**
- **4. Probability and Statistics**

### Physics Emphasis

- **1. Principles of Physics**
- **2. Quantum Mechanics**
- **3. Electromagnetism**
- **4. Relativity and Cosmology**

### Geology Emphasis

- **1. Principles of Geology**
- **2. Principles of Petrology**
- **3. Principles of Geochemistry**
- **4. Principles of Paleontology**

### Independent Research

- **1. Independent Research I**
- **2. Independent Research II**
- **3. Independent Research III**
- **4. Independent Research IV**
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.
97:130 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

12:3 Principles of Physical Geology 2 s.h.
12:103 Physical Geology 2 s.h.
12:4 Principles of Historical Geology 3 s.h.
13:104 Historical Geology 2 s.h.
12:41 Meteorology 4 s.h.
Earth Science Electives 11 s.h.*
29:11-12 College Physics 8 s.h.
29:61-62 General Astronomy 5 s.h.
44:10 Weather and Climate 3 s.h.
43-14 Principles of Chemistry I & II 6 s.h.
4:16 Principles of Chemistry I & II 6 s.h.
97:192 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

97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.
At least 25 semester hours of the physics emphasis must be earned in 100-level courses.

Chemistry Emphasis

4:13-14 Principles of Chemistry I & II 6 s.h.
4:15-16 Principles of Chemistry I & II 6 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 approval of departmental head 8 s.h.
22:35-36 Engineering Calculus I & II 4 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

Applications of Chemical Concepts 3 s.h.

Application of Science

Our 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.

Physics Emphasis

29:11-12 College Physics 8 s.h.
29:17-18 Introductory Physics II 8 s.h.
29:19 Introductory Physics III 8 s.h.
Physics electives 8 s.h.
22:35-36 Engineering Calculus I & II 8 s.h.
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.
Physical and earth science electives 4 s.h.
97:106 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.

Application of Science

Our 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 physics emphasis must be earned in 100-level courses.

Educational 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.
75:89 Introduction to Teaching English and Speech 2 s.h.
75:151 Science Methods I: Individualizing Instruction in Science (2 s.h., requires 3 s.h. of 75:151) 2 s.h.
75:100 Issues in Education 2 s.h.

75:191 Observations and Laboratory Practice in the Secondary School 3 s.h.
75:152 Science Methods II: Resources and Teaching Strategies (takes 20 s.h. of 75:150) 2 s.h.
75:190 Individual Projects in Laboratory Practice (takes 2 s.h. of 75:152) 1 s.h.
75:187 Seminar: Curriculum and Student Teaching 2 s.h.
75:190 Independent Projects in Laboratory Practice 2 s.h.
75:191 Observations and Laboratory Practice in the Secondary School (takes 3 s.h. of 75:190 and 4 s.h. of 75:192) 3 s.h.
75:192 Observations and Laboratory Practice in the Secondary School (takes 2 s.h. of 75:190 and 3 s.h. of 75:191) 3 s.h.
7W:02 Introduction to Microcomputers for Teachers 1 s.h.
7X:170 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 New Mexico 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.
75:190 Independent Projects in Laboratory Practice in the Secondary School 3 s.h.
75:128 Meaning of Science 2 s.h.
75:130 Science in Historical Perspective 2 s.h.

Other basic requirements:

Biology

2.1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
97:106 Societal and Educational Applications of Biological Concepts 3 s.h.
Botany and zoology electives 9 s.h.

Chemistry

4:13-14 Principles of Chemistry I & II 6 s.h.
4:14-15 Principles of Chemistry I & II 6 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
Chemistry electives 3 s.h.

Science Education/LIBERAL ARTS 207
Physics
32.11-12 College Physics  8 s.h.
37.105 Societal and Educational Applications of Selected Geosciences courses  5 s.h.
37.106 Physics electives  10 s.h.

General Science I
2.1 Introduction to Botany  4 s.h.
29.121 General Astronomy  4 s.h.
12.3 Principles of Physical Geology  2 s.h.
12.4 Principles of Historical Geology  3 s.h.
4.1 Principles of Chemistry I  3 s.h.
37.111 College Physics  4 s.h.
Applications elective  3 s.h.

General Science II (Environmental Studies Emphasis)
2.1 Introduction to Botany  4 s.h.
37.13 Principles of Animal Biology  5 s.h.
37.132 Population and Community Ecology  3 s.h.
4.1 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 Geology  3 s.h.
12.4 Principles of Historical Geology  2 s.h.
29.61 General Astronomy  3 s.h.
Applications elective  10 s.h.
57.102 Societal and Educational Applications of Earth Science Concepts and Topics  3 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 16 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 in 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 CLIP 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-nosatisfy; 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-SSTP
Iowa-SSTP is a special program for talented secondary school students who register for credit as undergraduate students. The program includes research participation, enrichment courses, and/or environmental field experiences.

Iowa-UPSTEP
Iowa UPSTEP is a continuing program for 3rd year undergraduate students interested in exploring science teaching as a career option. Students register for program seminars and varied practicums 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 Science in Education, Societal, 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 combine 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.
Corporative studies  3-6 s.h.
Minimum total  24 s.h.

Master of Science with Thesis
Science education  9 s.h.
Science specialization  20-25 s.h.
Corporative studies  3-6 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.
"Corporative studies  5 s.h.
Minimum total (beyond master's degree)  72 s.h.
"Corporative 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 Curriculum, 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 and public awareness of science-awareness corner; and each summer sponsors special workshops utilizing national authorities and enrolling 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 a number of 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 photoreographic laboratory, a departmental conference room, an office for coordinating Iowa-ASSIST, a model in-service program for assisting schools in implementing new national curricular programs in Iowa schools, a suite of offices or student programs; a 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 component of the science education and secondary school education programs; a self-study 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-LEAP/TL model; multiple offices for graduate assistants; a common area for small group discussions and individual work; and two large areas for whole group and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate vocational areas in science education and to provide science options for elementary and special education majors.

Primarily for Undergraduates:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDE 207</td>
<td>Cooperative Education Internship</td>
<td>3.0</td>
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For Undergraduates and Graduates

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SCHE 195</td>
<td>Societal and Educational Applications of Earth Science Concepts and Topics</td>
<td>3.0</td>
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<tr>
<td>SCHE 205</td>
<td>Societal and Educational Applications of Biologic Concepts</td>
<td>3.0</td>
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<tr>
<td>SCHE 210</td>
<td>Review of basic conceptual themes characterizing the science of biology and a series of practical exercises using a current social issue related to biology.</td>
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<tr>
<td>SCHE 250</td>
<td>Societal and Educational Applications of Selected Concepts of Physics</td>
<td>3.0</td>
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<tr>
<td>SCHE 260</td>
<td>Review of the major ideas of physics and how they have been derived; emphasis on how such ideas affect readers' own lives.</td>
<td>3.0</td>
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<tr>
<td>SCHE 290</td>
<td>Societal and Educational Applications of Chemical Concepts</td>
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<tr>
<td>SCHE 291</td>
<td>Application of the principles of chemistry in industry, communications, and daily living activities selected to illustrate the utility of the science of chemistry</td>
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<tr>
<td>SCHE 310</td>
<td>Selected Science in Education Topics</td>
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<tr>
<td>SCHE 412</td>
<td>Admired Science Foundations</td>
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<tr>
<td>SCHE 413</td>
<td>Introduction to Neurology</td>
<td>3.0</td>
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<tr>
<td>SCHE 420</td>
<td>Directed Study</td>
<td>3.0</td>
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<tr>
<td>SCHE 420</td>
<td>Individual Instruction</td>
<td>3.0</td>
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<tr>
<td>SCHE 420</td>
<td>Meaning of Science</td>
<td>3.0</td>
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<td>SCHE 420</td>
<td>Critical examination of the scientific enterprise from a social, ethical, cultural, and philosophical viewpoint</td>
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<td>SCHE 420</td>
<td>Societal Implications of Science</td>
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<td>SCHE 420</td>
<td>Societal Implications of Science</td>
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Social Studies Education

Chairs: Robert H. Fritz
Program Director: Robert H. Fritz
Associate Professor: R. Jerome Sivier
Ph.D. Degrees offered: B.S., M.A., Ph.D.

Undergraduate Program

The major in social studies education is an interdisciplinary, nonprofessional major. It provides a strong foundation for careers in law, social work, religion, urban planning, and social welfare, 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 National Council for the Social Studies.

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 7 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 seminars as alternatives to formal classes.

There is no separate two-year 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 the 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 have found the degree to be excellent preparation for professional work in curricular and pupil situations. For a few, the master's program in social studies education has provided access to civil service positions at various levels of government. The student may elect 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 yet more than 10 in education, and may complete the remaining 5 semester hours in either or both of his or her related departmental areas.

Both plans require at least 6 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/or 98:202 Seminar: Social Studies Education.

The candidate must pass an 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 research, 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 as 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 selecting a social studies education major, the M.A. candidate must maintain at least a 3.0 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 presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school districts. Many are engaged in teacher education programs in colleges and universities, while others are college instructors in the field of academic concentration.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond bachelor's degree, exclusive of preliminary requirements established by the College of Education. These credits are to be distributed among the cooperating disciplines and graduate education. Depending on the background and needs of the candidate, work in the chosen disciplines will compose approximately 50 percent of the total 90 semester hours, work in education approximately 50 percent.

Depending on the areas 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/or 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 research 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 pedagogy education have access to the facilities and offices of the cooperating departments and the College of Education on campus. Office space is also available, such as the University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Information Center, the Curriculum Laboratory, the Statistical Consulting Center, computer laboratory, and the Weing Center Computing Center.

The faculty members who serve as social studies education advisors and coordinators are experienced classroom teachers who have advanced degrees in the social sciences, and they are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses

98:031 Individual Instruction in Social Studies Education

98:032 Seminar: Social Studies Education
amateurs. Therefore, students entering the program with an accredited undergraduate social work degree and/or with advanced standing may expect to complete the program in four semesters (i.e., the fall semester following fall admission). Students requiring the entire 40 semester hours after admission generally complete the program the spring semester of their second year. Students must maintain at least a 2.5 cumulative grade-point average, must be approved for BSW candidacy, and must successfully complete a master's comprehensive examination. The student may elect a thesis option for credit, and the final examination is the oral defense of the thesis.

The following is an outline of the M.S.W. degree requirements.

**Core courses:**
- 42140 Human Behavior in the Social Environment 3 s.h.
- 42141 Social Work Practice I 3 s.h.
- 42142 Social Welfare Program and Policy 3 s.h.
- 42144 Social Work Research 3 s.h.

**Other required courses:**
- 42202 Social Change, Social Development, and Social Work 1 s.h.
- 42127 Social Work and Racism 2-3 s.h.
- 42119 Social Work and Discrimination 3 s.h.
- 42356 Advanced Research Seminar 3 s.h.

**Concentrations/Generalist options:**
- 7-12 s.h.
  - Concentrators (42-203 or 42-204) 3 s.h.
  - Two additional courses in the concentration selected 3 s.h.
  - Generalist: Required courses in concentrations (42-203 and 42-204) 6 s.h.
  - Two additional courses 4-6 s.h.
  - Advanced policy course 2 s.h.
  - Practicum 12 s.h.
  - Practicum seminar 2 s.h.
  - Electives (may include thesis) 6-15 s.h.
  - Final examination 0 s.h.
  - Total 60 s.h.

**Concentrations**

After admission, students may choose one of three plans of study. They may elect either to pursue an advanced work as a social work generalist or to choose between two concentrations. The human development and change concentration is designed to develop practice competence in working with individuals, families, and small groups. The administration and social development concentration equips students to be effective administrators and facilitators in human service agencies and communities, domestic and international.

**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 lines of various types of social work practice rather than to be limited to a single type of practice. Practitioners will include some opportunity for practice experience at each system level.

Students who complete a minimum of 9 semester hours of practicums in their concentrations are eligible for the Human Development and Change Concentration.

**Human Development and Change**

Through the human development and change concentration, students develop practice competence as enabling of personal development and change and as broker/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 interrelationships between individuals and the social, political, and economic environment in which they live. "Development" 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, responsive 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 an 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, investigatory and documentary research, negotiation, conflict resolution, social and political action, and cooperative development processes, whether domestic or international. Its purpose is to promote more humane 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 practicably 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 the student makes, practicums begin as early as the second semester. Some students remain in the Iowa City-Cedar Rapids area for the remainder of the program, 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. The Des Moines also is the largest city in the state. Many live 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 764,000 people, this center provides a wealth of practicum opportunities unavailable in Iowa City, including regional and advocacy planning, agencies, and social work areas in minority and programs for the elderly. Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for classes and exams. 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 for joint degrees. Students must be accepted by 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 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 a variety of 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 into the M.S.W. degree are:

- A bachelor's degree from an accredited college or university, with a reasonable distribution across 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 experience;

A personal statement addressing criteria specified by the School of Social Work.

Previous experience in the human services (volunteer, field or employment) is desired. Previous enriching life experience (cross-cultural, international experience and background, and minority status) also will be greatly considered.

Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL). It is the school's policy to admit 10 to 15 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 handful 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. In addition, most students are able to secure funds from the School of Social Work. Aid received through the University of Iowa Office of Student Financial Aid does not preclude students from securing additional aid through the School of Social Work for graduate study.

Various types of aid administered by the School of Social Work include research and teaching assistantships, work-study appointments, traineeships, scholarships, and the Eisenhower-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 a few agencies that provide stipends for graduate students in practice.

Courses

- Primarily for Undergraduates -
  4230 Introduction to Social Work

   Emphasizes the social problems of today and the interaction of social work concepts and techniques with goals of social work. Historical development of American social work. Required. 3 hrs.

- Social Work Practice I

   Emphasizes the social work process and basic principles of social work practice. 4 hrs.

- Social Work Practice II

   Emphasizes the social work process and basic principles of social work practice. 4 hrs.

- Field Experience Seminar

   Designed to provide opportunity for sharing experience from a variety of placements and facilitating the comparison of perceptions of field experiences from previous courses. 4 hrs.

- Individual Study

   Project related to student's career, current or past experience for a short-term period of study, advanced coursework in a specific field of study. 4 hrs.

- Internship in Social Work

   Supervised individual research. May be repeated. 4 hrs.

- Field Experience Seminar

   Designed to provide opportunity for sharing experience from a variety of placements and facilitating the comparison of perceptions of field experiences from previous courses. 4 hrs.

- Interdisciplinary Program

   Includes the social work component plus additional courses and requirements for other majors. 4 hrs.

- Community Health

   Emphasizes the social work process and basic principles of social work practice. 4 hrs.

- Human Behavior in the Social Environment

   Emphasizes the social work process and basic principles of social work practice. 4 hrs.

- Social Work Practice I

   Emphasizes the social work process and basic principles of social work practice. 4 hrs.

- Social Work Practice II

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- Social Work Practice II

   Emphasizes the social work process and basic principles of social work practice. 4 hrs.
Sociology

Chair: Edward J. Lawler

Professor: Ewan K., Donald J. Lawler, Charles W. Manley, David A. Putnam, James L. Price, Cecilia Ridgeway, Lyman W. Strickman


Assistant professor: William F. Peck, Rosemary Bannister, Linda L. Bannister, Barbara Rammel, Elizabeth Mulva, Roger Sterling

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 bachelor's study in sociology provides background for employment in several fields, such as social services, crime prevention, personnel, applied social research, community planning, and social science teaching in secondary schools. The program also provides a foundation for graduate or professional study in social work, 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. Program 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

341 Introduction to Sociology: Principles

342 Introduction to Sociology: Problems

340-10 Theory, Research, and Statistics

15 hours

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 science courses, anthropology, psychology, and

Sociology

In addition to the sociology requirements listed above, the B.S. program in sociology requires the following:

26:10 Introduction to Symbolic Logic

or

26:10 Introduction to Philosophy

Sociology

2:25 Elementary Statistics and

3:3 hours

One of these three combinations:

2:10 Finite Mathematics

2:11 Brief Calculus

2:10 Finite Mathematics

2:19 Elementary Functions

or

2:16 Introduction to Programming with Pascal

or

2:17 Programming Techniques and Data Structures

3 hours

Students with exceptionally strong high school backgrounds in mathematics may substitute 22:80-25-26 Calculus III for the mathematics option listed above. All majors are advised to take at least one basic course in history and philosophy and 6 semester hours of course work in at least two departments: mathematics, anthropology, psychology, political science, or a list. A complete list of requirements for a sociology major is available in the department office.

Departmental requirements are the same, or 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 at least 12 semester hours in sociology at The University of Iowa.

Minor

In addition to its major programs, the department provides supportive course work and several clusters of courses of value to undergraduate students who wish to combine a minor in sociology with a major in another field, particularly another social science, business administration, elementary education, or nursing. A brochure describing minors in sociology is available in the department office.

Sociology Teaching Major

To major in sociology and qualify for a teaching certificate, students must complete the following:

All departmental requirements for either a B.A. or a B.S. degree:

Twelve semester hours of course work in each of two related fields, taken from
ec济onics, geography, American history, world history, political science, and/or psychology (20 semester hours required in psychology); and

The professional courses required for certification (21 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 mutual interest with faculty and other honors students. The special requirements for an honors degree in sociology are completion of the honors program (34.100), 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 34.1 Introduction to Sociology: Principles, thereby waiving the course requirement of 34.2 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 programs prepare the student for doctoral studies or for professional positions involving sociology. The doctoral program has a research emphasis and prepares students for positions in colleges and universities, research organizations, government, and private and governmental positions. Opportunities for research (undergraduate, experimental, and observational methods) are readily available in the department.

Master of Arts

The M.A. degree in sociology requires 36 semester hours with 12 semester hours without thesis. The program without thesis includes a course in contemporary sociological theory and 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 34.201 and 34.202 Sociological Theory, 34.214 Elementary Statistics and Data Analysis, and 34.155 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 is essential to performance of specific criminal justice roles; therefore the student may 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 advisor, 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 84 hours required for the J.D., even though these hours are also credited toward the M.A. in sociology. At the discretion of the student's B.A. committee, the Department of Sociology may credit up to 12 semester hours of law coursework toward the M.A. degree. This cross-credit allows a student to receive the J.D. and the M.A. by taking two 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 at least 30 graduate-level credits in 34.216 Intermediate Statistics and Data Analysis and 33 semester hours in methods/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 psychology, deviance, methodology, family, social stratification, organizations, demography, and 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 test 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 and College of Education requirements for admission (see the "Graduate College" section of the Catalog), the applicant must complete a departmental application statement and use its personal references in obtaining time letters of recommendation. Applications should be submitted at least two months before the start of the academic year in which admission is requested. The deadline for applying for departmental admission is January 15.

Admission decisions are based on consideration of prior academic performance, personal reference letters, scores 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. degrees in sociology. Applicants concerning admission should be directed to the chair, Admissions Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.A. or a B.S. degree, a grade-point average of 2.75, and a total score of 1700 from the quantitative plus verbal sections of the GRE Aptitude Test. A descriptive publication is available at the departmental office.

Financial Aid

The Department of Sociology offers three types of financial aid: students, teaching assistantships, research assistantships, and teaching-research fellowships. Resident tuition is charged to non-resident students who receive awards. Students who receive one-half full time assistanship work 20 hours each week for
Spanish and Portuguese

Spanish and Portuguese

34:278 Seminar: Demography
Selected theoretical and methodological issues in demography. May be repeated. Prerequisite: graduate standing or consent of instructor.

34:279 Seminar: Development Policy and Planning in Third World Countries
Case-study and interdisciplinary analyses of problems associated with development and development in the developing nations. Prerequisite: graduate standing or consent of instructor. Same as 34:260, 34:254, 34:475, 34:478.

34:280 Seminar: Tertiary
Demographic and socioeconomic aspects of human fertility. Topics include sources of data, all-female and all-male population, differential fertility by race, ethnicity, and income, sex ratios and interregional differences, socioeconomic determinants, fertility timing, marriage, contraception, effects of government policies and programs. Prerequisite: graduate standing or consent of instructor.

34:281 Seminar: Urbanization
Factors affecting urbanization in the developing and the mature urban communities, emphasis on the processes of urbanization and industrialization. Prerequisite: graduate standing or consent of instructor. Same as 30:261, 30:334, 44:337.

Social Class, Inequality, Race, and Organizations

34:158 Political Sociology
Sociological analysis of political behavior, belief, group solidarity, political systems, group interaction, and the role of the individual in a political system. Prerequisite: 34:21 or consent of instructor.

34:159 Race and Ethnic Relations
Multidisciplinary study of social integration, with special emphasis on biological, economic, sociological, and psychological aspects in the United States. Prerequisite: 34:1 or 34:13. Same as 34:131, 12:131A, 12:131B.

34:187 Women and Health-Care Issues
Current health problems and issues critically and objectively measured in light of biological, cross-cultural, and epidemiological literature, and evaluated over a range of time and social contexts.

34:188 Organizations and Modern Society
Sociological analysis of the study of economic, social, and political organizations; the role of power and authority in the organization, and behavioral techniques of organizations. Prerequisite: 34:1 or 34:2 or consent of instructor.

34:189 Sociology of Work and Occupations
Practical concerns, problems, occupations, and professional careers; occupational group and subculture, alienation, stratification, interaction, and exchange of power; economic and structural interests. Prerequisite: 34:1 or 34:2 or 34:1 or consent of instructor.

34:190 Social Mobility
Processes for understanding social mobility, power, and prestige; social stratification, the impact of social positions on an individual's life, trends in and causes of social mobility; stratification by race and economic class. Prerequisites: 34:1 or 34:2 or 34:1 or consent of instructor.

34:191 Gender, Polity, and Social Change
Selected topics or special sections.

34:292 Social Stratification
Selected substantive issues in social stratification. Prerequisite: 34:25 or consent of instructor.

34:293 Labor Markets
Statistical and econometric theory and research concerning union/employee/employer labor markets, industrial relations, and the dual labor market, occupational/industrial labor markets, other structural explanations of inequality. Prerequisite: graduate standing and either 34:25 or consent of instructor.

34:294 Occupational Structure and Social Mobility
Conceptualization and measurement of social mobility, cross-cultural comparisons, and trends in mobility across careers, research on U.S. mobility with emphasis on race and sex differences.

34:295 Seminar: Organizations
Explanations of specific processes in organizational theory: Prerequisite: graduate standing or consent of instructor.

34:296 Complex Organizations
Transaction for graduate students in the study of organizations: its social productivity, effectiveness, transaction, coordination, conflict, and satisfaction. Prerequisite: graduate standing or consent of instructor.

34:297 Methods of Organizational Research
Selected topics in methods of organizational research. Prerequisite: graduate standing or consent of instructor.

34:304 Seminar: Issues Health Care Delivery Services
Effects of health care policies on health care utilization, with a focus on the effect of health care policies on the delivery of health care services. Prerequisite: graduate standing or consent of instructor.

Independent Reading and Research Projects

34:382 Seminar: Problems in Teaching
Research or independent study on teaching, with a focus on the effect of health care policies on the delivery of health care services. Prerequisite: graduate standing or consent of instructor.

34:388 Reading and Research Tutorial Seminar
May be repeated. Consent of supervising faculty member required.

34:390 Thesis Project

Spanish and Portuguese

Chairs: Thomas S. Lewis, Patricia Santua

Professor: Oscar Fafah, Laura Santua

Professor emeritus: José Fontenelle, Juan C. García, Luis González, Manuel Hidalgo, Luis de Ibarra, Juan A. Jiménez, Lázaro Martín, Manuel Sánchez, José Antonio Vázquez

Assistant professor: María A. Dávila, Ana González, Luisa M. González, Ana María Ochoa, Ana Vílchez

Adjunct associate professor: Óscar Ochoa-Díaz, Ana E. Ochoa

Lecturers: Rogelio Villalobos

Degrees offered: B.A., Bachelor of Arts; B.Ed., Bachelor of Education; M.A., Master of Arts; Ph.D., Doctor of Philosophy.

The department provides course work for undergraduate and graduate majors in Spanish or Portuguese, for the satisfaction of foreign language requirements for baccalaureate and advanced degrees in other fields, and for the satisfaction of the second literary requirement for undergraduate majors in comparative literature.

Knowledge of foreign language and culture is indispensable in many career areas. Students majoring in Spanish or Portuguese may find opportunities in fields such as business, transportation, industry, journalism, international broadcasting, publishing, teaching, research, library work, and translating.

Undergraduate Programs

Bachelor of Arts in Spanish

Elementary and intermediate courses in Spanish interrelate five performance goals—listening, reading, speaking, writing, and cultural knowledge—in a format that is designed to develop oral proficiency. Emphasis is on acquisition of Spanish in realistic, communication situations.

The undergraduate major in Spanish consists of 30 semester hours of required course work, according to the following program:

Language (12.0 h.)

34:107 Third-Year Spanish

34:108 Third-Year Spanish

34:109 Fourth-Year Spanish

Literature (9.0 h.)

34:131 Contemporary Spanish

34:132 Spanish American Poetry

34:153 Spanish-American Drama

34:154 Spanish-American Short Story

34:155 Contemporary Latin American Novel and Short Story

34:138 Survey of Twentieth-Century Puerto Rican Literature

34:151 Renaissance and Golden Age Literature

34:152 Spanish-American Literature

34:153 Spanish Representative Literature of the Civil War

34:154 Nineteenth-Century Spanish

34:170 Literature of the Discovery and Conquest of Spain

34:171 Spanish-American Literature from the Conquest to 1600

34:172 Spanish-American Literature of the Renaissance

34:173 Images of Women in Hispanic Literature

34:174 Topics in Chicano-Puerto Rican Studies (Spanish/English)

34:175 Cultural Identity in Chicano-Latino/West Literature (in Eng)

34:177 Periods and Genres of Spanish American Literature I

34:178 Periods and Genres of Spanish American Literature II

34:179 Nineteenth-Century Literature in Latin America (Spanish/Eng)

34:180 Spanish Golden Age Fiction

34:181 Spanish Golden Age Poetry and Drama
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.102</td>
<td>Spanish Picassenesque Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35.183</td>
<td>Spanish Novelties Since the Civil War</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35.186</td>
<td>Twentieth-Century Spanish Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35.187</td>
<td>Periods and Genres of Spanish Literature I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35.188</td>
<td>Periods and Genres of Spanish Literature II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35.150</td>
<td>Spanish American Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>26.150</td>
<td>Slovenian Civilization</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Electives (6 s.h.)**

The electives may include one course in Portuguese (with exception of 35.31 and for no more than 4 semester hours credit) or any course numbered 250100 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:

- 35.101 Accelerated Elementary Spanish
- 35.102 Advanced Intermediate Spanish
- 35.105 Language Teaching Practicum
- 35.115 Methods of Foreign Language
- 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 the 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 foreign language program, including 12 semester hours at the 100 level. The 4 courses listed above as not suitable toward the above requirement for the Spanish major also may not be applied toward a minor. No more than 3 semester hours of credit may be applied toward the minor from the following courses:

- 35.117 Introduction to Spanish Literature and Culture | 3 s.h.
- 35.117 Introduction to Spanish Literature and Culture | 3 s.h.
- 35.174 Topics in Chicano-Puerto Rican Studies | 3 s.h.
- 35.175 Cultural Indentity in Caribbean Literature | 3 s.h.
- 35.176 Latin American Studies | 3 s.h.
- 35.199 Special Work | 1-3 s.h.

Students who plan to use the Spanish minor in teaching on the secondary level or in a bilingual program are encouraged to complete language study through 35.199 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 3.2 overall grade-point average and a minimum 3.2 average in Spanish. Graduation with honors in Spanish requires, in addition to the 30 semester hours major described above, 6 semester hours earned in 35.108 Honors: Spanish Literature and/or 35.107 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.

**Bachelor of Arts in Portuguese**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.111</td>
<td>Portuguese I Elementary Portuguese</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>26.112</td>
<td>Portuguese II Elementary Portuguese</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or 26.110</td>
<td>Accelerated Portuguese (26.114)</td>
<td>0-5 s.h.</td>
</tr>
<tr>
<td>26.111</td>
<td>Intermediate Portuguese I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>26.112</td>
<td>Intermediate Portuguese II</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Required Courses (15 s.h.)**

- 35.172 Topics in Portuguese Literature: (upper-division language) | 3 s.h.
- 35.174 Culture and Civilization of the Portuguese-speaking World | 3 s.h.
- 35.199 Special Topics in Brazilian Literature | 3 s.h.
- 35.107 Introduction to Brazilian Literature | 3 s.h.
- 35.117 Two of the Following Courses (6 s.h.)
  - 35.172 Topics in Luso-Brazilian Literature | 3 s.h.
  - 35.117 Topics in Portuguese Linguistics | 3 s.h.

**Elections (6 s.h.)**

Other courses in the above group or other non-regular 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 Nonmajors

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 20.50 Contemporary Latin America, in which the readings are in English. The department offers several other literature and cultural survey courses that are taught in English and are of great 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 seminar. For further information on the Latin American Studies Program, please contact:...
Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of one year of undergraduate Spanish major. Deficiencies may be remedied with the appropriate course work. The following course work is required:

35:177-178 Periodos y Geog. in 6 s.h.
Spanish American Literature - I, II
6 s.h.
35:187-188 Periodos y Geog. in 6 s.h.
Spanish Literature - I, II
6 s.h.
35:200 Foreign Language Teaching 3 s.h.
Methods
35:210-214 (Graduate Spanish 8 s.h.
Linguistics - I, II)
35:205 Historical Neo-Romance 7 s.h.
Language
For elective courses at the 200 level or the advanced 300 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 not more than 12 semester hours in the fall or spring semesters, and for not more than 6 semester hours during the summer sessions. 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 minimum 10-semester-hour requirement for the M.A. degree.

Teaching Certification

Exclusively of the student-teaching requirements, graduate students may take the courses necessary for secondary teaching certification while complying 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 literature; 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 (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:

M.A. courses or equivalent transfer 37 s.h.
credits
35:205 Introduction to
3 s.h.
Contemporary Literary Theory

Three 300-level seminars 6 s.h.

35:393 Thesis 2 s.h.

Eight elective courses at the 200 level or 12 s.h.
the advanced 300 level, no more than three (3 s.h.) of which may be taken outside the department; the required minimum of total semester hours to the required minimum of 72 in the Ph.D. program.

Program II: Linguistics Track

The following course work is required:

M.A. courses or equivalent transfer 37 s.h.
credits
Department of Linguistics:

35:110 Articulatory and Acoustic 3 s.h.
Phonetics
35:112 Syntactic Analysis 3 s.h.
35:113 Phonological Theory and 3 s.h.
Analysis
35:121 Syntactic Theory 3 s.h.
35:122 Phonological Theory 3 s.h.
Department of Spanish and Portuguese:

One course in Advanced Spanish Syntax 3 s.h.

One course in Comparative Romance 3 s.h.
Linguistics

One course in Spanish (Not including 3 s.h.
One elective course in Spanish
3 s.h.
Two 300-level seminars in Spanish
linguistics
1 s.h.
35:205 Thesis 2 s.h.

Total semester hours required 72 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 taken for credit, to determine the student's readiness for 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 as follows:

Written presentation and subsequent oral defense of a research paper.

Written analysis of a single test in Hispanic literature or a single problem in Spanish linguistics that is assigned to the candidate 30 minutes before two-hour exam. The problem is selected 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 be expected to be familiar, either from reading lists or from previous course work.

Excluding presentation of the research paper and the 30 minutes of advanced selection on the test or problem presented to the candidate 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 in the linguistic works, is usually one or one-and-one-half hours long. The examining
Undergraduate Programs

Since the major's degree or its equivalent is the minimum level of preparation for professional careers in this field, the undergraduate curriculum 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 courses of speech, hearing, and language. Those undergraduate programs also may be taken by persons planning a degree in the College of Liberal Arts who do not wish to major in this field.

The major requirements for the B.S. or B.A.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>311</td>
<td>Introduction to Clinical Psychology</td>
<td>3.0</td>
</tr>
<tr>
<td>315</td>
<td>Personality</td>
<td>3.0</td>
</tr>
<tr>
<td>315</td>
<td>Psychology of Sex Differences</td>
<td>3.0</td>
</tr>
<tr>
<td>316</td>
<td>Abnormal Psychology</td>
<td>3.0</td>
</tr>
<tr>
<td>316</td>
<td>Behavior Disorders in Children</td>
<td>3.0</td>
</tr>
<tr>
<td>317</td>
<td>Behavior Modification</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Graduate Programs

Master 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 student who wishes to pursue a career as a M.A. with professional emphasis designed to prepare the student to meet the requirements for professional employment.

The M.A. with a professional emphasis has a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior essentially equivalent to an undergraduate major in this field at the University of Iowa.

Before registering in the program, the entering M.A. degree candidate must take proficiency examinations covering the speech and hearing course work which are considered prerequisite to graduate study. The results of these examinations provide the student and faculty advisor with a basis for developing a plan of study.

The M.A. program with professional emphasis is designed to prepare clinicians in speech-language pathology or audiology who will be able to function independently in a variety of clinical settings. Persons completing an M.A. program with professional emphasis will meet all academic and practical requirements for clinical certification by the American Speech-Language-Hearing Association.

The department offers the M.A. with various emphases. Each requires a minimum total 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 registration.
2. Speech-Language Pathology, General Clinical Emphasis

Courses listed under 1 and:
3.152 Slurring
3.122 Voice Disorders
3.255 Neurogenic Speech and Language
3.227 Civil palate and Related Disorders
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.
70:194 Remedial Methods in Speech and Hearing
70:192 Laboratory Practice in Elementary School
Additional practicum, research, and elective courses

4. Audiology, General Clinical Emphasis

Courses listed under 1, sort:
3.120 Fundamentals of Laboratory Instrumentation
3.140 Manual Communication
3.240 Clinical Audiology and Hearing Aids
3.340 Advanced Audiology
3.242 Clinical Audiology and Hearing Aids II
3.245 Audiology Procedures for Special Populations
3.227 Civil palate and Related Disorders
Additional practicum, research, and elective courses

5. Audiology, School Hearing Clinician

Courses listed under 1, 4, and 70:194 Remedial Methods in Speech and Hearing
70:192 Laboratory Practice in Elementary School
3.55 Audiology Procedures, 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 allow the certification requirements of Iowa and most other states.

75:170 Human Relations for the Classroom Teacher
Education electives

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in continuation processes and their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their work in the atmosphere of interdisciplinary research.

The program reflects the broad interests and diverse backgrounds of the faculty. Workers in speech, language, hearing, engineering, psychology, physics, psycholinguistics, and bioengineering are involved in 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 individually planned 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 developed from the courses offered in this department, those in other areas of the college, and special reading and research experiences.

The Department of Speech and Language Sciences is the offering department for this degree. The degree is offered primarily for the Ph.D. student, including the following courses of study, which are important in specific areas of research and selected professional activities of the faculty. All departments are encouraged to write the department's summary.}

3.241 Principles of Voice Production
3.242 Language Acquisition
3.243 Psychological and Biological Dynamics of Speech
3.245 Phonetics of Speech
3.246 Psychology of Speech
3.247 Physiology and Motor Speech
3.248 Psycholinguistics
3.249 Neurolinguistics
3.250 Acoustics and Phonetics of Speech
3.251 Neuromotor Systems
3.252 Articulation and Language Disorders
3.253 Speech and Language Abnormalities in the Mentally Handicapped
3.254 Seminar: Voice
3.255 Seminar: Civil palate

This may be accomplished by any combination of enrollment in seminars (at 2 semester hours each) and/or research hours. Completion of the research hours registration may consist of work toward a thesis or preparation of a paper involving one or more combinations of the following: literature review, prospectus development, and presentation of data. A paper in current, required at the end of each semester's enrollment. An exception to this requirement may be made in the case of research hours leading to a thesis.

Candidates for an M.A. degree with professional emphasis are not required to complete a thesis, although all students demonstrating reasonable aptitude and interest are encouraged to do so. All candidates preparing for the M.A. degree without theses are required to take final written comprehensive examinations.

A typical M.A. program with professional emphasis is two years in length but may be longer or shorter depending on the student's background and personal interests.

M.A. with Research Emphasis

(Genral Program)

The general M.A. program for the student intending to continue to the Ph.D. degree usually includes a substantial portion of the courses in the professional M.A. program. Students in the general M.A. program also are required to present a thesis and successfully complete a final oral examination.

M.A. with Professional Emphasis

Students preparing for the M.A. with professional emphasis must fulfill requirements under 1 below and, depending on specific areas of interest, the courses listed under 2, 3, 4, 5, or 6 below.

1. All Majors

3.136 Neural Processes of Speech and Language
3.132 Articulation Disorders
3.135 Hearing Loss and Audiometry
3.242 Developmental Language Disorders
3.244 Reconstructive Audiology
3.245 Counseling for Related Professions
3.100 Counseling Theories and Techniques
3.55 Seminar: Introductory course in Research in Speech and Hearing

Advanced seminars or research 4 s.h.
Additional seminar hours of practicum registration sufficient to meet supervised, clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association, and to provide broad supervised practicum experience.

Equivalent undergraduate course may be accepted as meeting requirements.
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 allows few applicants with undergraduate grade-point averages below 3.0. Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Later applications will be considered only under 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 desires 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.

Appointment applications must be received by February 1 to ensure consideration for an appointment beginning the following fall semester.

Initial appointment offers are generally made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training program benefits greatly from the fact that Iowa City is the principal health center of the state and from the availability of its health service facilities for the clinical training of students in speech language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the University of Iowa Speech and Hearing Clinic, the division of speech and hearing in the Department of Otolaryngology—Head and Neck Surgery; Speech Pathology Service in the Department of Neurology; Speech and Hearing Services; University Hospital; Pediatrics Regional Child Health Specialty Clinics; Speech Pathology Service, Child Psychology and Audiology and Speech Pathology, Veterans Administration Medical Center. Directors of these programs form the Council on Speech Pathology and Audiology at Iowa University.

The University of Iowa Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, hearing, and language problems, and a six-week summer residential program for children. These programs give students supervised clinical experiences with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the University Speech and Hearing Clinic, training also may be acquired in supervised clinical practice with elementary school children by arrangement with the various state area education agencies, and in supervised clinical practice in speech and hearing services provided by the departments of Otolaryngology—Head and Neck Surgery, Pediatrics, and Neurology, the Regional Child Health Specialty Clinics, University Hospital School, Veterans Administration Medical Center, and St. Luke's Methodist Hospital in Cedar Rapids. Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and remediation suites, equipment for diagnostic and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, phonographic, and perceptual studies of speech, and for audiological, psychrophysiological, and neuropsychological studies of hearing. Many of the electronic aids and trained technical personnel provide the necessary assistance in research instrumentation.

Cooperation of various departments and the University of Iowa Hospitals and Clinics and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further enhances the scope of research activities in speech and hearing.

Courses

3990 Speech Pathology and Audiology

Cooperative Education Assignment

4 s.h.

Coop assignment administered by the Cooperative Education Office. See the Cooperative Education Program Handbook and of the Cooperative Education Office.

535 Introduction to Speech and Hearing

535 s.h.

Freshman commodity course in the study of the spoken language. Involves student participation in scientific study of major types of speech, hearing and language disorders. Emphasis on satisfactory oral delivery of assignments.

537 Hearing Screening

537 s.h.

Speech screening in patients of various ages; preparation for selection and use of instruments for hearing screening and screening of the patient for hearing aid selection.

538 Perception

538 s.h.

Experiences in communication, perception and production of sound and in study of research problems in speech-language pathology and audiology. Course is required of students in speech-language pathology and audiology as a satisfactory oral delivery of assignments.
3.512 Seminar: Speech and Language Stills
2 a.b. Study of topics in this area through review of library and/or original research papers. 1 credit. Lecture, 1 field experience. Prerequisites: 3.511 or consent of instructor.

3.513 Seminar: Basic Auditory Pathology
2 a.b. Theories in auditory sciences, including the basic physiological, psychological, and behavioral aspects of hearing. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.514 Seminar: Theatrical Arts
2 a.b. Seminar in theatrical arts. Topics in current trends and developments in theatrical arts. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.515 Seminar: Creative Writing
2 a.b. Seminar in creative writing. Topics in current trends and developments in creative writing. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.516 Seminar: Psychology of the Theatre
2 a.b. Seminar in the psychology of the theatre. Topics in current trends and developments in the psychology of the theatre. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.517 Seminar: Anthropology and Theatre
2 a.b. Seminar in anthropology and theatre. Topics in current trends and developments in the relationship between anthropology and theatre. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.518 Seminar: Theatre History
2 a.b. Seminar in theatre history. Topics in current trends and developments in the history of theatre. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.519 Seminar: Theatre Criticism
2 a.b. Seminar in theatre criticism. Topics in current trends and developments in theatre criticism. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.520 Seminar: Theatre Production
2 a.b. Seminar in theatre production. Topics in current trends and developments in theatre production. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.521 Seminar: Television and Theatre
2 a.b. Seminar in television and theatre. Topics in current trends and developments in the relationship between television and theatre. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.522 Seminar: Theatre and Film
2 a.b. Seminar in theatre and film. Topics in current trends and developments in the relationship between theatre and film. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.523 Seminar: Theatre and Dance
2 a.b. Seminar in theatre and dance. Topics in current trends and developments in the relationship between theatre and dance. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.524 Seminar: Theatre and Music
2 a.b. Seminar in theatre and music. Topics in current trends and developments in the relationship between theatre and music. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.525 Seminar: Theatre and Literature
2 a.b. Seminar in theatre and literature. Topics in current trends and developments in the relationship between theatre and literature. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.526 Seminar: Theatre and Philosophy
2 a.b. Seminar in theatre and philosophy. Topics in current trends and developments in the relationship between theatre and philosophy. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.527 Seminar: Theatre and Psychology
2 a.b. Seminar in theatre and psychology. Topics in current trends and developments in the relationship between theatre and psychology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.528 Seminar: Theatre and Sociology
2 a.b. Seminar in theatre and sociology. Topics in current trends and developments in the relationship between theatre and sociology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.529 Seminar: Theatre and Economics
2 a.b. Seminar in theatre and economics. Topics in current trends and developments in the relationship between theatre and economics. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.530 Seminar: Theatre and Politics
2 a.b. Seminar in theatre and politics. Topics in current trends and developments in the relationship between theatre and politics. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.531 Seminar: Theatre and Law
2 a.b. Seminar in theatre and law. Topics in current trends and developments in the relationship between theatre and law. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.532 Seminar: Theatre and Education
2 a.b. Seminar in theatre and education. Topics in current trends and developments in the relationship between theatre and education. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.533 Seminar: Theatre and Technology
2 a.b. Seminar in theatre and technology. Topics in current trends and developments in the relationship between theatre and technology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.534 Seminar: Theatre and Science
2 a.b. Seminar in theatre and science. Topics in current trends and developments in the relationship between theatre and science. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.535 Seminar: Theatre and Religion
2 a.b. Seminar in theatre and religion. Topics in current trends and developments in the relationship between theatre and religion. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.536 Seminar: Theatre and Art
2 a.b. Seminar in theatre and art. Topics in current trends and developments in the relationship between theatre and art. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.537 Seminar: Theatre and Dance
2 a.b. Seminar in theatre and dance. Topics in current trends and developments in the relationship between theatre and dance. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.538 Seminar: Theatre and Music
2 a.b. Seminar in theatre and music. Topics in current trends and developments in the relationship between theatre and music. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.539 Seminar: Theatre and Literature
2 a.b. Seminar in theatre and literature. Topics in current trends and developments in the relationship between theatre and literature. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.540 Seminar: Theatre and Philosophy
2 a.b. Seminar in theatre and philosophy. Topics in current trends and developments in the relationship between theatre and philosophy. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.541 Seminar: Theatre and Psychology
2 a.b. Seminar in theatre and psychology. Topics in current trends and developments in the relationship between theatre and psychology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.542 Seminar: Theatre and Sociology
2 a.b. Seminar in theatre and sociology. Topics in current trends and developments in the relationship between theatre and sociology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.543 Seminar: Theatre and Economics
2 a.b. Seminar in theatre and economics. Topics in current trends and developments in the relationship between theatre and economics. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.544 Seminar: Theatre and Politics
2 a.b. Seminar in theatre and politics. Topics in current trends and developments in the relationship between theatre and politics. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.545 Seminar: Theatre and Law
2 a.b. Seminar in theatre and law. Topics in current trends and developments in the relationship between theatre and law. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.546 Seminar: Theatre and Religion
2 a.b. Seminar in theatre and religion. Topics in current trends and developments in the relationship between theatre and religion. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.547 Seminar: Theatre and Art
2 a.b. Seminar in theatre and art. Topics in current trends and developments in the relationship between theatre and art. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.548 Seminar: Theatre and Dance
2 a.b. Seminar in theatre and dance. Topics in current trends and developments in the relationship between theatre and dance. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.549 Seminar: Theatre and Music
2 a.b. Seminar in theatre and music. Topics in current trends and developments in the relationship between theatre and music. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.550 Seminar: Theatre and Literature
2 a.b. Seminar in theatre and literature. Topics in current trends and developments in the relationship between theatre and literature. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.551 Seminar: Theatre and Philosophy
2 a.b. Seminar in theatre and philosophy. Topics in current trends and developments in the relationship between theatre and philosophy. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.552 Seminar: Theatre and Psychology
2 a.b. Seminar in theatre and psychology. Topics in current trends and developments in the relationship between theatre and psychology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.553 Seminar: Theatre and Sociology
2 a.b. Seminar in theatre and sociology. Topics in current trends and developments in the relationship between theatre and sociology. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.554 Seminar: Theatre and Economics
2 a.b. Seminar in theatre and economics. Topics in current trends and developments in the relationship between theatre and economics. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.555 Seminar: Theatre and Politics
2 a.b. Seminar in theatre and politics. Topics in current trends and developments in the relationship between theatre and politics. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.556 Seminar: Theatre and Law
2 a.b. Seminar in theatre and law. Topics in current trends and developments in the relationship between theatre and law. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.557 Seminar: Theatre and Religion
2 a.b. Seminar in theatre and religion. Topics in current trends and developments in the relationship between theatre and religion. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.558 Seminar: Theatre and Art
2 a.b. Seminar in theatre and art. Topics in current trends and developments in the relationship between theatre and art. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.

3.559 Seminar: Theatre and Dance
2 a.b. Seminar in theatre and dance. Topics in current trends and developments in the relationship between theatre and dance. 1 credit. Lecture. Prerequisite: 3.511 or consent of instructor.
Auditions

Auditions for departmental productions are scheduled weekly for each semester. Audition materials and information can be picked up at the theatre 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 adviser. 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 basic requirements of the theatre department and the University before they may undertake advanced level electives or seek admission to a special emphasis program.

Minor in Theatre Arts (required of all theatre arts majors)

- 491 Art of the Theatre (3 h.)
- 491-492 Acting I & II (3 h. each)
- 491-492 Stagecraft I & II (3 h. each)
- 492 Play Script Analysis (3 h.)
- 492 Acting Experience (1 h.)
- 492-493 Stagecraft Experience (3 h. each)
- 492-493 Stagecraft I & II (3 h. each)
- 494-495 Stagecraft Experience (3 h. each)
- 494-495 Stagecraft I & II (3 h. each)
- 495 Directing I (3 h.)
- 495 Directing II (3 h.)
- 495 Directing Experience (1 h.)
- 495 Voice for the Actor (3 h.)
- 495 Movement for the Actor (3 h.)
- 495 Stage Makeup (3 h.)
- 495 Stage Makeup Experience (1 h.)
- 495 Movement Experience (1 h.)
- 495 Acting Experience (1 h.)
- 495-496 Playwriting I & II (3 h. each)
- 495-496 Playwriting Experience (3 h. each)

Special Emphasis Program Requirements:

Acting Emphasis:

- 495-496 Acting I & II (3 h. each)
- 495-496 Acting Experience (1 h. each)

Graduate Program

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, costume direction, production management, or stage management may apply for admission to the graduate program in theatre and drama. Information on the graduate program can be obtained from the Graduate Office of the department.

Courses

Primarily for Undergraduates

- 498 Cooperative Education Internship (1-3 h. each)

I-I I: Theatre

- 491 Art of the Theatre (3 h.)
- 491-492 Acting I & II (3 h. each)
- 491-492 Stagecraft I & II (3 h. each)
- 492 Play Script Analysis (3 h.)
- 492 Movement Experience (1 h.)
- 492-493 Stagecraft Experience (3 h. each)
- 492-493 Stagecraft I & II (3 h. each)
- 493 Directing I (3 h.)
- 493 Directing II (3 h.)
- 493 Directing Experience (1 h.)
- 493-494 Voice for the Actor (3 h. each)
- 493-494 Movement for the Actor (3 h. each)
- 493-494 Stage Makeup (3 h. each)
- 493-494 Stage Makeup Experience (3 h. each)
- 493-494 Movement Experience (1 h.)
- 495-496 Playwriting I & II (3 h. each)
- 495-496 Playwriting Experience (3 h. each)

Graduate Studies

For complete details on the Graduate Program, see the Graduate Catalogue.
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49.155 Costume Crafts: Accessories 3.0h.
- Composition of garments and costume properties, and library, armor, heraldry, and related items. 
Preparation: 49.41.

49.156 Electrical Control in the Theatre 3.0h.
- Circuitry, stage lighting, fireproofing, and marshaling in the theatre. Preparation: 49.40.

49.157 Advanced Costume Design 3.0h.
- Historical research and development of production concepts, costume design, marionette puppetry, and mask construction. Preparation: 49.56, 49.64, and 49.143.

49.158 Advanced Lighting Design 3.0h.
- Historical research and development of production concepts, costume design, marionette puppetry, and mask construction. Preparation: 49.56, 49.64, and 49.143.

49.162 Playwrights Exercise 2.0h.
- Oral and written development of original scripts in playwriting a small writing ensemble. May be repeated. Preparation: consent of instructor.

49.163 Adaptation 3.0h.
- Drama of its own cultural and social environment. Preparation: consent of instructor.

49.164 Playwrights and Directors 3.0h.
- Directors work with playwrights on original material. Preparation: consent of instructor.

49.166 Directing 4.0h.
- The process of directing a theater production. Students develop skills and responsibilities to become directors of plays and productions. Preparation: consent of instructor.

49.171 Advanced Playwriting 3.0h.
- A combination of 49.42, analysis and discussion of original dramatic writing, writing exercises and play reading. Discussion of marketing, conflicts, and productions. Preparation: consent of instructor.

49.172 Advanced Playwriting 3.0h.
- An analysis of "how the minds". Preparation: consent of instructor.

49.173 Playwrighting for Directors 3.0h.
- Directors learn the craft of directing with an emphasis on the writer's work. Preparation: consent of instructor.

49.174 Performance Art 3.0h.
- Emphasis on the writer's work. Preparation: consent of instructor.

49.176 Director's Seminar 3.0h.
- Emphasis on the writer's work. Preparation: consent of instructor.

49.177 Costume Designers' Society 3.0h.
- The costume designer's society of costume design. Preparation: consent of instructor.

49.178 Chinese Theatre 3.0h.
- Seminar course. Preparation: consent of instructor.

49.179 Chinese Theatre 3.0h.
- Seminar course. Preparation: consent of instructor.

49.180 Costume Design and Production 3.0h.
- Seminar course. Preparation: consent of instructor.

49.181 Chinese Theatre 3.0h.
- Seminar course. Preparation: consent of instructor.

49.182 Shakespeare Theatre 2.0h.
- Seminar. Preparation: consent of instructor.

49.183 Restoration Drama 2.0h.
- Seminar. Preparation: consent of instructor.

49.184 Studio in Modern Drama 2.0h.
- Seminar. Preparation: consent of instructor.

49.185 Modern Drama: Scene to Stage 2.0h.
- Seminar. Preparation: consent of instructor.

49.186 Modern Drama: Scene to Stage 2.0h.
- Seminar. Preparation: consent of instructor.

49.187 English Renaissance Drama 2.0h.
- Seminar. Preparation: consent of instructor.

49.188 American Drama to 1945 2.0h.
- Seminar. Preparation: consent of instructor.

49.189 Studio in Drama 2.0h.
- Seminar. Preparation: consent of instructor.

49.190 Selected Drama or 2.0h.
- Seminar. Preparation: consent of instructor.

49.191 Greek Drama in Translation 2.0h.
- Seminar. Preparation: consent of instructor.

49.192 Studio in Drama 2.0h.
- Seminar. Preparation: consent of instructor.

49.193 Shakespeare's Selected Plays 2.0h.
- Seminar. Preparation: consent of instructor.

49.194 Independent Study 2.0h.
- Seminar. Preparation: consent of instructor.

49.195 Shakespeare's Early Plays 2.0h.
- Seminar. Preparation: consent of instructor.

49.196 Shakespeare's Later Plays 2.0h.
- Seminar. Preparation: consent of instructor.

49.197 Ideas in Theatre I 2.0h.
- Seminar. Preparation: consent of instructor.

49.198 Ideas in Theatre II 2.0h.
- Seminar. Preparation: consent of instructor.

49.199 Ideas in Theatre III 2.0h.
- Seminar. Preparation: consent of instructor.

49.200 Performance Theory I 1.0h.
- Seminar. Preparation: consent of instructor.

49.201 Performance Theory II 1.0h.
- Seminar. Preparation: consent of instructor.

49.202 Advanced Theatre I 2.0h.
- Seminar. Preparation: consent of instructor.

49.203 Advanced Theatre II 2.0h.
- Seminar. Preparation: consent of instructor.

49.204 Production Management 2.0h.
- Seminar. Preparation: consent of instructor.

49.205 Stage Design 2.0h.
- Seminar. Preparation: consent of instructor.

49.206 Playwrights Workshop 2.0h.
- Seminar. Preparation: consent of instructor.

49.207 Director's Workshop 2.0h.
- Seminar. Preparation: consent of instructor.

49.208 Advanced Playwriting 2.0h.
- Seminar. Preparation: consent of instructor.

49.209 Advanced Playwriting 2.0h.
- Seminar. Preparation: consent of instructor.

49.210 Research and Bibliography in Theatre 2.0h.
- Seminar. Preparation: consent of instructor.

49.211 Practical in Area Management 2.0h.
- Seminar. Preparation: consent of instructor.

49.212 Research and Bibliography in Theatre 2.0h.
- Seminar. Preparation: consent of instructor.

49.213 History of Criticism Class to 1700 2.0h.
- Seminar. Preparation: consent of instructor.

49.214 History of Criticism 1700-1950 2.0h.
- Seminar. Preparation: consent of instructor.

49.215 Seminar: Theatre History 2.0h.
- Seminar. Preparation: consent of instructor.

49.216 Seminar: Dramatic and Ethnological Criticism 2.0h.
- Seminar. Preparation: consent of instructor.

Transportation Studies

Transportation is perhaps the most vital need modern society. In the United States, as to most other nations, there exist numerous critical transportation problems and issues. The highway system is reaching an advanced stage of its life cycle, public transit operating deficits are growing, the quality of transportation available to many cities is unacceptably high, serious financing inequities exist, and extensive changes are needed in traditional transportation institutions.

Transportation planners and analysts must draw on a number of disparate skills to respond to the challenges they face. They are required to analyze and forecast the movement of people and goods within and between cities; identify the most efficient means for providing needed transportation services; price these services properly; and lobby for changes in transportation services or policies on land use, environmental quality, the local or regional economy, and various subgroups within society.

No single discipline can supply all of the theories, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this, these academic units at The University of Iowa
participate in an interdisciplinary transportation research. The Department of Civil and Environmental Engineering, the Department of Geography and the Graduate Program in Urban and Regional Planning have established a graduate certificate program, which enables students in these academic units to obtain an additional credential along with their graduate degree.

The Transportation Certificate program is coordinated by the Center for Transportation Studies, which is administered by the Graduate Program in Urban and Regional Planning within the Graduate College of The University of Iowa. Completion of the requirements for a certificate is documented on the student's transcript. The certificate is awarded in conjunction with the established degree requirements of the individual academic units.

Sufficient flexibility exists within the Transportation Certificate program to enable students to pursue individual interests. While there is extensive sharing of courses, the transportation curricula of the three involved academic units have somewhat different emphases.

Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers degrees in transportation at both the M.S. and Ph.D. levels. The M.S. degree may be earned on either a non-thesis basis requiring a minimum of 30 semester hours of credit, or on a 36-semester-hour thesis program that includes up to 6 semester hours of credit for thesis research. Non-thesis students usually are required to complete a research paper based on independent study that is defended in an oral examination.

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 residency 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, mathematical, 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.

Second Semester
53:163 Transportation Systems Analysis 3 s.h.
102:261 Problems in Transportation and Land Use 3 s.h.
44:236 Travel Demand Modeling 3 s.h.
One of the following courses:
53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
53:199 Research: Civil and Environmental Engineering M.S. Paper 3 s.h.
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 specialization draws on the resources of the College of Engineering, the Department of Economics, and the Graduate Program in Urban and Regional Planning, as well as the Department of Geography. The specialty has a strong quantitative orientation and is designed to provide students with a broad range of analytical skills relevant to transportation and urban and regional analysis. It also helps students develop an appreciation of political and organizational considerations affecting transportation systems and the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban and regional analysis, three quantitative methods courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have studied calculus as undergraduates can complete the master's program in four semesters. Students who have not studied calculus as undergraduates or who have research or teaching assistantships may require an additional one or two semesters to complete the program.

A typical master's level program includes the following courses:

First Semester
65:185 Statistical Methods in description and location theory and analysis 3 s.h.
44:201 Geographical Analysis I 3 s.h.
44:202 Geographical Analysis II 3 s.h.
44:203 Regional Development: Policy and Planning I 3 s.h.

Fourth Semester
44:236 Travel Demand Modeling 3 s.h.
36:170 Deterministic Operations Research 3 s.h.
44:235 Regional Development: Policy and Planning II 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 analysis. Ph.D. students are also 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 sectorial 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 sectorial 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 optional courses of action, 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 theses option is elected, 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 sectional 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 Program Seminar 1 s.h.

Two of the following courses:

44.194 Methods of Transportation Analysis 3 s.h.
50.262 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 Policy 1 s.h.
53.163 Transportation Systems Analysis 3 s.h.
44.235 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.
102.256 Capital Facilities Planning and Finance 3 s.h.
102.245 Energy and Public Utility Policy and Planning 3 s.h.
102.295 Regional Development: Policy and Planning I 3 s.h.
102.396 Development Finance 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

Adjoint Lecturers: Part C. Cahn, Karin A. Franklin, Andrew J. McKern
Degrees offered: M.A., M.S.

Planning encompasses the development of public policy alternatives to improve the quality of life in cities and regions. Planners are involved in such areas as urban public transit provision, low-income housing, neighborhood preservation, environmental protection, infrastructure finance, downtown revitalization, social services provision, and economic development.

The University of Iowa planning program is a two-year master's program fully accredited by the Planning Accreditation Board. The program has been built on the premise that planners must be educated in the methods of policy analysis and that there is a common body of knowledge, represented in the core curriculum, that provides a solid foundation for all specializations in the field.

An interdisciplinary academic unit administratively located in the Graduate College, the program has benefited from an opportunity to develop its curricular and faculty interests within the constraints imposed by affiliation with another discipline or professional field.

Faculty and students in the planning program at The University of Iowa bring to each other a wide range of experience and prior education. Fields represented within the faculty, on the basis of previous training, include planning, architecture, public policy, economics, operations research, geography, engineering, political science, and law. The program's students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, environmental sciences, engineering, anthropology, sociology, urban studies and planning, English, business, history, classics, and philosophy. Literacy, about half of the program's 45-50 graduate students are women. Large because of the common core of courses, students get to know each other quickly; a significant portion of the educational experience takes place in informal instruction.

Recent graduates of The University of Iowa planning program have assumed positions with city, metropolitan, and regional planning agencies, in state and federal government, and in the private sector. The past seven years' graduates took positions in all geographic regions of the United States and in several foreign countries.

Urban and Regional Planning

Claire Peter S. Fisher
Professors: David J. Fejes, John W. Fisher, James L. Harris
Associate professors: Peter S. Fisher, James W. Doney
Assistant professors: Cheryl K. Cahn, James A. Tysinger

Curriculum Structure

The planning curriculum comprises a 44-semester-hour, 2-year Master of Urban and Regional Planning (premier) course program encompassing two academic years. This includes 27 semester hours of core courses, 9 semester hours of sectional major course work, and 12 semester hours of free electives. The curriculum is based on the general philosophy that planners must develop the theoretical and analytical skills that permit them to identify issues and recommend alternative ways of solving 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 environments. 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's 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 policy analysis and constrain public choices; a capability for identifying social goals and normative criteria for evaluating public policies; and analytic tools—both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and qualitative—in total, a core account for 27 semester hours.

Courses in the core curriculum are as follows:

First Semester

102.203 History and Theories of Planning 3 s.h.
102.295 Economics for Policy Analysis I 3 s.h.
102.209 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.
102.296 Economics for Policy Analysis II 3 s.h.
102.211 Intermediate Analytic Methods 3 s.h.
102.210 Introduction to Analytic Methods 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 (particularly economics, law, and political science), together with an introduction to the theories and practice of planning. Later courses teach students to select and evaluate information and to develop conclusions and policy recommendations. As students proceed through the core, increasing reliance is placed on the development of 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 course work.
The second year of the program is directed toward developing an area of concentration, the sector major, building on the concepts and skills developed in the core by applying them to a specific profession area. Students fulfill the sector major requirement by completing 5 semester hours of credit in courses offered in the planning program and by other departments and schools of the university.

Currently, each major is being supported by courses offered in faculty within the planning program; transportation, housing and community development, environmental planning, infrastructure planning, and economic development. Other sector 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 sector majors that students have developed include land use, public utility and energy planning, urban management, and historic preservation.

The balance between core courses, a sector major, and elective courses allows students the opportunity to acquire a rigorous and concentrated 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 by 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 in the core; application of core concepts to the student's own experiences; an understanding of influential knowledge of issues, institutions, and policies; and the ability to connect the work generally is made up of revised and polished revisions of research papers and project reports for courses. The portfolio must be approved by a final exam committee consisting of all the 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 6 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 sector major requirement, and the thesis substitutes for the seminar.

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 results in 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 this 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 and 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 skills in economic analysis by enrolling in the joint program and preparing an M.S. in Economics. The program requires a total of 60 to 62 semester hours of credit and can be completed in five semesters. 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, geography, and mathematics. This certificate program allows planning students with sector 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, contracts, grants, or scholarship grants. Students in these aid programs 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 by 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.
Admission is based on Graduate Record Examination (CRE) Graduate Record Examinations (quantitative, verbal, and analytical), letters of recommendation, and undergraduate achievement.

Applicants should submit the application form and the essay for consideration no later than January 15, or by December 15 for spring admission. Final admission is preferred.

Courses

100.004 Cooperative Education Internship 3 s.h.

110.010 Introduction to Planning and Policy Development 3 s.h.

Emergence of urban problems and current policy issues. Analysis of urban and public health practices in the context of social welfare, fiscal constraints, financial management, social dysfunction, and environmental quality.

110.019 Introduction to Environmental Planning 3 s.h.

Satisfaction of the human need for the environment. Recreation, the political, and social context of environmental problems. Habitat development of environmental laws and public planning for the protection of the environment.

110.025 Regional Development Policy and Planning 3 s.h.

Analysis of regional growth and developments leading to urbanization, urban development, and urban management for regional development.

120.033 Introduction to Transportation 3 s.h.

Overview of urban transportation and public policy issues in the context of road and rail networks, traffic congestion, and economic development.

120.034 Methods of Transportation Analysis 3 s.h.

Analysis of urban transportation and public policy issues in the context of road and rail networks, traffic congestion, and economic development.

120.035 Urban Transportation 3 s.h.

Public policies, transportation planning, production, pricing, allocation of transit and urban highway service, energy consumption, city case studies, urban freight traffic. Prerequisites: 120.01, 120.02.

120.036 History and Theories of Planning 3 s.h.

History of U.S. urban growth and change from a definitional and environmental perspective. Urban planning and public transport philosophies and the role of the planner in open space planning.

120.039 Collective Decision Making 3 s.h.

Study of public and private decision-making theories. Market decisions in planning, consumer behavior at the store, models of individual and group choice, the politics of public choice, possibilities for systematic planning in the demographic context, and the role of the planner.

120.049 Ecological Systems Analysis 3 s.h.


120.069 Essentials for Policy Analysis I 3 s.h.

Principles of policy making and analysis. The role of the planner in decision making. Overview of planning history and principles. Development of planning policies and planning principles. Understanding planning issues.

120.079 Planning Law and Legislation 3 s.h.

Introduction to planning and legislation. Legal and ethical frameworks. Legal and ethical frameworks in urban and rural planning. Environmental aspects of planning hearings, land use, economic development, regional planning, and public law issues.

120.109 Introduction to Analytic Methods 3 s.h.

Introduction to probability theory and statistics (descriptive and inferential). Emphasis on application of statistical methods to the analysis of transport and transportation data. Use of computer assisted data editing and data processing and analysis.

120.119 Intermediate Analytic Methods 3 s.h.

Introduction to the principles of transport planning and a means of analyzing complex transportation systems, traffic analysis, population and employment forecasting, automobile, road safety, and design and evaluation of policy experiments.

120.129 Information Presentation 3 s.h.

Fundamentals of graphic display techniques and the design and presentation of public documents. Emphasis on graphic display techniques and the design and presentation of public documents.

120.209 Field Problem In Planning 3 s.h.

Field problems in planning practice. Class hour of field study. Two students work on a planning project under the supervision of a faculty member and a community agency.

120.229 Advanced Planning Methods 3 s.h.

Topics in advanced techniques applied to planning. May include systems analysis, operations research, microsimulation, modeling, research design and implementation, and work programming, information systems, and urban design.

120.230 Urban Design 3 s.h.

Urban form as a reflection of cultural values and economic and political institutions. Basic concepts of urban design. Development of a design project from the beginning of the project to the final presentation.

120.269 Professional Planning Practice 3 s.h.

Current professional planning practice and skills. Client representation and technical skills. Emphasis on the acquisition of professional skills. Examination of the role of the planner in the planning process.

120.339 Project Impact Analysis 3 s.h.

Analysis of urban and regional issues, environmental, and fiscal impacts of urban and regional programs. Emphasis on project evaluation and implementation. Student projects are used to illustrate impacts analysis.

120.349 Central Facilities Planning 3 s.h.

Overview of current public infrastructure guidelines and processes of planning and urbanism. City case studies of central facilities planning in metropolitan areas.

120.359 Environmental Planning and Policy 3 s.h.

Identification and analysis of the role of the planner in promoting and growing urban population to the urban environment. Analysis of environmental planning and policy issues.

120.369 Environmental Policy and Planning 3 s.h.

An analysis of issues, legislation, politics, and research on environmental planning and policy. Research is tied to current trends in the environmental quality movement and environmentalism in the planning field.

120.389 Energy and Public Utility Policy and Planning 3 s.h.

An introduction to public utility services and the changing role of the utilities in the context of economic, efficiency criteria, and public policy. Development of energy systems, national and international issues, and the role of the planner.

120.399 Transportation Planning and Policy 3 s.h.

The professional setting in public transportation and planning services and the changing role of the public transit system in the context of economic, political, and social issues. The role of the planner as a public utility planner.

120.419 Problematic in Transportation and Land Use 3 s.h.

Projects in public utility planning and real estate development. Problems involving public utility services and the changing role of the utilities in the context of economic, efficiency criteria, and public policy. Development of energy systems, national and international issues, and the role of the planner.

120.429 Transportation System Analysis 3 s.h.

An introduction to transportation and land use planning. Problems involving public utility services and the changing role of the utilities in the context of economic, efficiency criteria, and public policy. Development of energy systems, national and international issues, and the role of the planner.

120.439 Transportation and Urban Development 3 s.h.


120.449 Transportation and Urban Development 3 s.h.


120.459 Transportation Planning and Policy 3 s.h.

An introduction to transportation and land use planning. Problems involving public utility services and the changing role of the utilities in the context of economic, efficiency criteria, and public policy. Development of energy systems, national and international issues, and the role of the planner.

120.469 Transportation Planning and Policy 3 s.h.

An introduction to transportation and land use planning. Problems involving public utility services and the changing role of the utilities in the context of economic, efficiency criteria, and public policy. Development of energy systems, national and international issues, and the role of the planner.
Women's Studies

Chair: Margery Wol

Program Coordinators: Florence Bass (English), Martha Chee (Linguistic), Leslie F. Rafter (Women's Studies), Adela K. Wol (English), Carol de Souza Victor (English), Nancy Busch (Physical Education and Dance), John B. Singleton (Sociology), David Rose (Economics), Doreen K. (Economics), Nancy Hauenstein (Clinical Medicine and Human Services), Cecilia Flenn (Sociology), David Rosenfeld (Economics), Yeoneh Station (Physical Education and Dance)

Assistant professors: Sh. Elyson Assey, Social Work, Florence C. Rab (Sociology), Women's Studies, Nancy Raby (Sociology), Ethel Brown (African-American Studies, English, Carolyn Condon (Psychology), Mary Lue Ewing (English), Linda Johnson (Sociology), Adrian Merced Redas (Spanish and Portuguese), Leslie Stevens (Journalism and Public Relations), Diana Viera (Spanish and Portuguese)

Adjunct associate professor: Howard Kaplan (Social Work)

The Women's Studies Program's goal is to provide a multidisciplinary program focusing on the teaching and research of women in culture, society, and history. Its major goal is to bring to the University community new research on women, which frequency is overshadowed by traditional disciplines. By taking courses in many different departments, students become acquainted with feminist scholarship and its methodology in the humanities and social sciences. These courses may be used to establish a field of concentration within the Women's Studies Program or to apply in majors in other disciplines.

Undergraduate Study

Undergraduates interested in Women's Studies may develop programs of study in relation to core work in a major, as part of an area of concentration within a Bachelor of General Studies degree, as a minor, or as a set of electives to satisfy general interest. It is strongly recommended that students complete 24 hours of credit, with 12 in Women's Studies courses taken in the last two of four semesters.

Minor

Undergraduate students may complete a minor in Women's Studies by taking 30 semester hours of departmental courses associated with the program, including at least 12 semester hours taken at The University of Iowa in 160-level courses, and maintaining a grade-point average in those courses of 2.0 or higher. It is strongly recommended that students completing a minor in Women's Studies, including the optional semester hour 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 Ph.D. Interdisciplinary Ph.D. through the Graduate College. Students must complete 16 hours of core courses in the field.

Information on faculty members in various departments who direct graduate study is available from the Women's Studies Program, 305 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 departmental courses offer additional courses focusing on women. Women's Studies courses for University credit are also offered by the Saturday and Sustaining Class Program and by the Student Correspondence Study.

African-American Women's Studies

129:230 Images of Black Women in Modern American Fiction 3.0

129:237 Black Women Writers 3.0

American Studies

45:4 Family and Sex Roles 3.0

45:7 Sex, Race, and Ethnicity 3.0

Communication Studies

34:137 Sex Roles and Communication 3.0

Counselor Education

7C:112 Human Sexuality 3.0

7C:150 Psychological Aspects of Women's and Men's Roles 1.0

7C:182 Introduction to Marriage and Family Counseling and Psychotherapy 3.0

7C:218 Group Leadership in Human Sexuality 2.0

6C:211 Marriage and Family Counseling and Psychotherapy 3.0

English

8G:15 The Literary Presentation of Women (general education course) 3.0

8R:1 18 Black Women Writers 3.0

6E:434 Seminar: Twentieth-Century British Literature 3.0

History

16:16 Problems in Human History: Communities, Families, and Culture (general education course) 3.0

16:15 Problems in Human History: Women, Politics, and Society (general education course) 3.0

16:181 Society and Gender in Europe 1450-1750 3.0

16:182 Society and Gender in Europe 1750-1850 3.0

16:254 Readings: Women in European History 3.0

16:284 Seminar: History of American Women 3.0

16:287 Readings: History of American Women 3.0

Home Economics

17:117 Human Sexuality 3.0

Law

91:300 Sex Bead Discrimination 2.0

Nursing

96:122 Human Sexuality 3.0

96:216 Group Leadership in Human Sexuality 3.0

Psychology

31:116 Psychology of Sex Differences 3.0

Rhetoric

10:3 Rhetoric 4.0

Social Work

42:112 Human Sexuality 3.0

42:205 Women in Administration 3.0

42:216 Group Leadership in Human Sexuality 3.0

42:205 Advanced Human Sexuality 3.0

Sociology

34:135 Sociology of Sexuality: Contemporary Sex Patterns 3.0

34:182 Courtship, Marriage, and Alternative Life-Styles 3.0

* Only certain sections of these courses are women's studies courses.
Courses

Core Courses

121-112 Introduction to Women's Studies 3.0 a.h.
Introduction to the historiography and methodology of women's history, focusing on women's political, economic, social, cultural, and intellectual contributions. Emphasis on historical and contemporary perspectives.

121-150 Topics in Women's Studies 3.0 a.h.
Topics vary, may be repeated with consent of instructor.

121-151 Feminist Theory 3.0 a.h.
Survey of historical and contemporary feminist theories, methods, and critiques. Focus on theoretical and methodological issues in feminist research and writing. Emphasis on theories of gender, race, class, and sexuality. Prerequisite: 121-112.

121-175 Independent Reading in Women Studies 1.0-6.0 a.h.
Supervised reading and research in women's studies, on a topic not currently offered in regular courses.

Cross-listed courses

121-130 Women in American Culture 3.0 a.h.
Topics include feminist women in America, women and the labor movement, women in literature, women in the arts, women's magazines, women's popular culture, and indians and women. Offered as 121-115, 121-116.

121-155 The World Women and Literature 3.0 a.h.
Cross-listed: 121-155. World women are explored through their creative works in an attempt to understand the complexity of their oppression and the heroic struggle against racism, classism, and sexism. Same as 121-115.

121-192 Physiological Research on Women in Sport 2.0 a.h.
Physiological capabilities, exercise to training, and lecture specific to pregnancy, childbirth and gender-related injury. Same as 101-103.

121-198 Women and Society 3.0 a.h.
Examines and explores the role and status of women in society, sex differences, sex role socialization, recognition about social and institutionalization of sexual inequalities, changes in social life and women, and integration with respect to social institutions and processes, focus on contemporary United States. Same as 101-119.

121-111 Religious and Women 3.0 a.h.
The study of women and their enslavement in biblical narratives, law, warfare, the Bible, and, religion, and religious movements. Same as 121-150.

121-128 Black Women in America 2.0 a.h.
Women of black women in American society, methodology, and race relations. Same as 121-150.

121-152 The Sexual and Film 2.0 a.h.
Survey of major feminist films from 1970s to 1970s. Controversies in the film and the roman images of the sexes and how these images relate to reality, same as 121-150.

121-155 Sociology of Women in Sport 3.0 a.h.
Theories and analysis of women and gender, sport experiences, including socialization into sport, societal norms, expectations, women's sport, and feminist activism in sport. Same as 121-150.

121-158 Women's Roles in the Cultural Context 3.0 a.h.
The social, cultural, and political role of women and men around the world, an analysis of sex roles, with emphasis on culture, history, and contemporary social change in women's lives in various cultures. Same as 121-150.

121-161 Women in the World 3.0 a.h.
Same as 121-155.

121-162 Women in Literature 3.0 a.h.
Same as 121-155.

121-163 Thematic and Modes in Literature by Women 3.0 a.h.
Same as 121-155.

121-164 Economic and Political Development of Women 3.0 a.h.
The economic and political development of women in Latin America, Asia, and Africa, and the women's movement. The study of women in a world of flux and change, ventures, cross-cultural, and women's contemporary social change. Same as 121-155.

121-165 Changing Concepts of Women in Society 3.0 a.h.
Same as 121-155.

121-171 Women in American: Colonial Period to 1870 3.0 a.h.
American life through women's eyes, emphasizing the role of women in American society, economy, and politics. Same as 121-150.

121-172 Women in America: 1870-Present 3.0 a.h.
American life through women's eyes, emphasizing the role of women in American society, economy, and politics. Same as 121-150.

121-181 Poetry by Women Writers 3.0 a.h.
Same as 121-155.

121-182 Prose by Women Writers: The Essay 3.0 a.h.
Survey of select feminist essays, primarily contemporary essays, on women with attention to the works and context of women's experiences of women in women's lives. Same as 121-155.

121-194 Women's Literature and Culture 4.0 a.h.
Same as 121-155.

121-195 The Cultures of America American 3.0 a.h.
An examination of the variety of women's experiences in America, emphasizing the relationship between individual lives and broad social and cultural context. Same as 121-155.

121-216 Women and Therapy 3.0 a.h.
Examining psychological and psychological factors that affect treatment of women's therapy. Same as 121-155.

121-220 Feminist Criticism 3.0 a.h.
Feminist literary criticism, emphasizing women's interpretation of women's works, and women's responses to women's works. Same as 121-155.

121-250 Ending in America Women's 3.0 a.h.
Same as 121-155.

121-257 Women and Social Change: 2.0 a.h.
Cross-listed: 121-257. Changing societal changes, both national and international, that have changed women's lives on the social and economic plane, both internationally and nationally. Same as 121-155.

121-260 Ending in America Women's 3.0 a.h.
Same as 121-155.
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 a four-year institution, 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 48 semester hours in business courses and at least 48 semester hours in non-business courses. Limited specialization is elected through the student's designated major.

The last 30 (or all 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 core course requirements:

- Rhetoric 101 and 102, or 103 8 s.h.
- 22M.17 and 22S.6 Quantitative Methods I and II
- 22M.25, 22M.26 and 22S.120 6 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.
- Natural science (excluding math) 3 s.h.
- Historical perspectives (3-6 s.h.)
- Foreign civilization and culture (6 s.h.)
- Humanities (including 6G1 Interpretation of Literature) 3 s.h.
- Psychology/sociology (31:1, 34:1, or 34:2) 3 s.h.
- Social psychology (31:15 or 24:13) 3 s.h.
- Computer Analysis (6K:70, 22C:20, 22C:9, or 22S:45) 3 s.h.
- 6K:7 Statistical Analysis 3 s.h.
- 6K:14 Introduction to Law 3 s.h.
- 6F.100 Introductory Financial Management 3 s.h.
- 6L.100 Administrative Management 3 s.h.
- 6M.100 Introduction to Marketing 3 s.h.
- Business policy (6K:105, 6L:105, 6K:179, or 6F:128) 3 s.h.

In addition, the student must complete a major area of study. The majors offered by the college are business administration, accounting economics, finance, industrial relations and human resources, management sciences, and marketing. With the exception of the major in business administration, the requirements for each are established by the departments of the college.

Major in Business Administration

This major permits students to pursue a less specialized curriculum than is provided by any of the other majors in the college. It also allows students to concentrate in areas where majors are not available, such as international business, but in which courses are offered in departments within the college.

The requirements for the major in business administration are:

- Six business courses (18 s.h.) numbered above 100, including at least four of the following:
  - 6A.113 Trends and Business Decisions
  - 6E.103 Microeconomics
  - 6F.117 Intermediate Financial Management
  - 6K:161 Individual Behavior in Organizations
  - 6K:180 Management Information Systems

- 6L:158 Personnel Management

- 6M:134 Marketing Research

In addition to the required grade-point averages listed above, students in this major must have a grade-point average of at least 2.0 on all courses taken from the list above and on all business courses numbered above 100.

Students majoring in business administration may substitute 6K:84

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 adviser 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 university.

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 31 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 (3 s.h.)

- Business calculus (22M:11, 22M:25, or 22M:35) 3 s.h.
- Statistics (22S:08 or 22S:120) 3 s.h.
- 6E.1 Principles of Microeconomics 3 s.h.
- 6E.2 Principles of Macroeconomics 3 s.h.
- 6G.1 Introduction to Financial Accounting 3 s.h.
- 6A.2 Introduction to Managerial Cost Accounting 3 s.h.
- 6M:100 Introduction to Marketing 3 s.h.
- 6F:100 Introductory Financial 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 required courses 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 on 12 or more semester hours of graded work and who have no hours of 1.0 or 0.0 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 of the two semesters who have no hours of I or O given for any semester are 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 in 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).

Prefreshman 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 Program and the House Honors Center. They also are encouraged to participate in the Iowa Honors Squads, which plans a variety of social and educational 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 must apply no later than the fourth week of the Fall semester of their first year. 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 both 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 60 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.

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 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 36 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 protected student enrollments in line with available instructional 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 credits 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 32 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 or the major program. For additional information students should contact the Academic Programs Office, 121 Phillips Hall.

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 two weeks of the semester or first one or one-half weeks of the summer session with the approval of the advisor and instructor. Courses may be dropped during the first two 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 may be nonpass. To count as 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 is good academic standing to be eligible for pass-nonpass only if in the student’s major. Pass-nonpass registration must be completed during the first three weeks of each 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, or 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 academic year).

Fill out the necessary form at the Academic Programs Office, College of Business Administration, 121 Phillips Hall. The forms must be submitted by the end of the third week of the semester (or first one or one-half weeks of the summer session). Liberal Arts prerequisites majors must adhere to academic-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 proficiency demonstrated by appropriate examinations. The M.B.A. degree program may be completed in residence at the University of Iowa or 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 may be admitted to the Accelerated Professional Track (APT) program towards the M.B.A. degree. Those students can take the M.B.A. foundation courses as electives in their undergraduate program 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 education position in their major field 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 a 3.5 grade-point average or better, and indicate their intention 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)

6A102 Financial Accounting— M.B.A. 3 s.h. 6E100 Consumer and Firm Behavior 3 s.h. 6E101 National Income Analysis—M.B.A. 3 s.h. 6K103 Computer Methods—M.B.A. 3 s.h. 6K197 Quantitative Methods— M.B.A. 3 s.h. 6L155 Management of Organizations—M.B.A. 3 s.h. 6M256 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 taken above and pursue more advanced study associated with their own career objectives. Following are the integrated core course requirements.

Integrated Core (21 semester hours)

6L198 Society, Law, and Business—M.B.A. 3 s.h. 6L214 Managerial Accounting— M.B.A. 3 s.h. 6L261 Administrative Science I— M.B.A. 3 s.h. 6L265 Administrative Policy— M.B.A. 3 s.h. 6L265 Administrative Policy— M.B.A. 3 s.h. 6L271 Statistical Methods—M.B.A. 3 s.h. 6L273 Managerial Economics—Theory—M.B.A. 3 s.h. 6L276 Operations Research— M.B.A. 3 s.h. 6L276 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 sponsored 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.

In addition to the program fees, fees, and application procedures may be required by writing on 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 or 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, and management information systems. The minor may also be developed to provide appropriate combinations 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 course work must include study in accounting, quantitative methods, organizational behavior, management, finance, marketing, and one economic and one legal course. This prepares students to profit in both for-profit and 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.
Minor area 6 s.h.
Economic theory and/or organizational behavior 6 s.h.
Electives 6 s.h.
Research methodology 3 s.h.
Research reports (two) 2 s.h.
Total 35 s.h.
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) Applicants that possess a minimum of 20% in 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.

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 in 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.A. or M.B.A. 1 semester hour 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 Phillips Hall, a high-rise building dedicated 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 campuses 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 area 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.

4683 Cooperative Education Internship
M.B.A.  6 s.h.

4684 Winter Concentration Skills—M.B.A.  1 s.h.
Writing for business courses.

4682 Oral Communication Skills—M.B.A.  1 s.h.
One preparation skills for business courses.

Accounting
Head: John H. Smith
Professor: R.L. Barnes, Daniel W. Collins (Munsey Professor), Valdem C. Lemli, John H. Smith
Associate professors: Douglas V. De Jong, Richard A. Grondal, Albert S. Schipanski
Assistant professors: C. Edward Antilljohn, Jon R. Francis, Thomas J. Lemaster
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 two 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, 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, and 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 are eligible for admission to the Professional Program in Accounting after completing 56 semester hours of coursework, including the six courses required as prerequisites for admission to the College of Business Administration. (4630 Computer Analysis, and 4671 Statistical Analysis, and lower semester grades of A or B in (461) Introduction to Financial Accounting and 462 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
6A131 Financial Accounting I  3 s.h.
B.B.A. corexams requirements or electives  12 s.h.

Spring Semester
6A132 Financial Accounting II  3 s.h.
6A115 Introduction to Taxation  3 s.h.
6A176 Managerial Decision Models  3 s.h.
B.B.A. requirements or electives  6 s.h.

Second Year
Fall Semester
6A130 Cost Accounting for Management Analysis and Control  3 s.h.
6A144 Auditing  3 s.h.
6203 Microeconomics  3 s.h.
B.B.A. requirements or electives  6 s.h.

Spring Semester
6A145 Financial Accounting III  3 s.h.
6A146 Law and Business  3 s.h.
Policy requirement  3 s.h.
B.B.A. requirements or electives  6 s.h.

*Third Year*
Fall Semester
6A220 Accounting Theory I  3 s.h.
6A220 Tax Accounting for Graduate Students (or elective)  3 s.h.
6A225 Accounting Information Systems (or elective)  3 s.h.
Electives  6 s.h.

Spring Semester
6A221 Accounting Theory II  3 s.h.
6A231 Research in Taxation (or elective)  3 s.h.
6A230 Auditing and Regulation of Accounting Practice (or elective)  3 s.h.
6A230 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 300-level accounting courses, including 6A220 and 6A221, 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, 106 Calvin 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 3
This program is for students who have bachelor's degrees with no prior training in business or accounting. An individualized program 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 typical first-year courses include:

6A.214 Managerial Accounting—M.B.A. 3 a.b.
6A.215 Introduction to Taxation 3 a.b.
6A.311 Financial Accounting I 3 a.b.
6A.312 Financial Accounting II 3 a.b.
6E.106 Price, Employment, and Production Theory 3 a.b.
6E.194 Managerial Finance—M.B.A. 3 a.b.
6E.197 Quantitative Methods—M.B.A. 3 a.b.
6E.271 Statistical Methods—M.B.A. 3 a.b.
6E.148 Law and Business 3 a.b.

Those taking the typical second-year courses:

6A.148 Cost Accounting—M.B.A. 3 a.b.
6A.220-221 Accounting Theory I-II 6 a.b.
6A.281 Administrative Science I—M.B.A. 3 a.b.
6A.273 Managerial Economics—M.B.A. 3 a.b.
6A.250 Accounting electives 6 a.b.

Doctor of Philosophy
See "Interdepartmental Graduate Program" at the front of this section of the Catalog.

Courses
Primarily for Undergraduates
6E.000 Cooperative Education Internship 0 a.b.
6E.110 Introduction to Financial Accounting 3 a.b.

For Undergraduates and Graduates
6E.191 Cost Accounting 3 a.b.
6E.192 Managerial Accounting 3 a.b.
6E.215 Introduction to Taxation 3 a.b.
6E.311 Financial Accounting I 3 a.b.
6E.312 Financial Accounting II 3 a.b.
6E.106 Price, Employment, and Production Theory 3 a.b.
6E.194 Managerial Finance—M.B.A. 3 a.b.
6E.197 Quantitative Methods—M.B.A. 3 a.b.
6E.271 Statistical Methods—M.B.A. 3 a.b.
6E.148 Law and Business 3 a.b.

Those taking the typical second-year courses:

6A.148 Cost Accounting—M.B.A. 3 a.b.
6A.220-221 Accounting Theory I-II 6 a.b.
6A.281 Administrative Science I—M.B.A. 3 a.b.
6A.273 Managerial Economics—M.B.A. 3 a.b.
6A.250 Accounting electives 6 a.b.

of the professional program (Program I above) to complete the M.A. degree.

Program 3
This program is for students who have bachelor's degrees with no prior training in business or accounting. An individualized program 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 typical first-year courses include:

6A.214 Managerial Accounting—M.B.A. 3 a.b.
6A.215 Introduction to Taxation 3 a.b.
6A.311 Financial Accounting I 3 a.b.
6A.312 Financial Accounting II 3 a.b.
6E.106 Price, Employment, and Production Theory 3 a.b.
6E.194 Managerial Finance—M.B.A. 3 a.b.
6E.197 Quantitative Methods—M.B.A. 3 a.b.
6E.271 Statistical Methods—M.B.A. 3 a.b.
6E.148 Law and Business 3 a.b.

Those taking the typical second-year courses:

6A.148 Cost Accounting—M.B.A. 3 a.b.
6A.220-221 Accounting Theory I-II 6 a.b.
6A.281 Administrative Science I—M.B.A. 3 a.b.
6A.273 Managerial Economics—M.B.A. 3 a.b.
6A.250 Accounting electives 6 a.b.

Doctor of Philosophy
See "Interdepartmental Graduate Program" at the front of this section of the Catalog.

Courses
Primarily for Undergraduates
6E.000 Cooperative Education Internship 0 a.b.
6E.110 Introduction to Financial Accounting 3 a.b.

For Undergraduates and Graduates
6E.191 Cost Accounting 3 a.b.
6E.192 Managerial Accounting 3 a.b.
6E.215 Introduction to Taxation 3 a.b.
6E.311 Financial Accounting I 3 a.b.
6E.312 Financial Accounting II 3 a.b.
6E.106 Price, Employment, and Production Theory 3 a.b.
6E.194 Managerial Finance—M.B.A. 3 a.b.
6E.197 Quantitative Methods—M.B.A. 3 a.b.
6E.271 Statistical Methods—M.B.A. 3 a.b.
6E.148 Law and Business 3 a.b.

Those taking the typical second-year courses:

6A.148 Cost Accounting—M.B.A. 3 a.b.
6A.220-221 Accounting Theory I-II 6 a.b.
6A.281 Administrative Science I—M.B.A. 3 a.b.
6A.273 Managerial Economics—M.B.A. 3 a.b.
6A.250 Accounting electives 6 a.b.

Primarily for Graduates
6E.313 Taxes and Business Decision—M.B.A. 3 a.b.
6E.314 Managerial Accounting—M.B.A. 3 a.b.
6E.315 Introduction to Taxation 3 a.b.
6E.316 Financial Accounting I 3 a.b.
6E.317 Financial Accounting II 3 a.b.
6E.106 Price, Employment, and Production Theory 3 a.b.
6E.194 Managerial Finance—M.B.A. 3 a.b.
6E.197 Quantitative Methods—M.B.A. 3 a.b.
6E.271 Statistical Methods—M.B.A. 3 a.b.
6E.148 Law and Business 3 a.b.
Economics

Undergraduate Programs

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 183 Statistical Methods in Econometrics
- GE 202 Price Theory
- GE 204 Macroeconomics I
- 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 minimum 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. Programs

The department collaborates with the Department of Geography in a joint M.A. degree and with the College of Law in a joint M.A.-J.D. degree. 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 degrees.

Doctor of Philosophy

The Ph.D. degree 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 requirements:

First Semester

- GE 180 Mathematics for Economists I
- GE 183 Statistical Methods in Econometrics
- GE 205 Microeconomics
- GE 204 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 212 Econometrics I

Fourth Semester

- GE 202 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
Industrial Relations and Human Resources

Chair: Richard C. Prepper
Professor: Norman T. Katz
Professor: Peter Schodter, Anthony V. Strickland (Marney Professor)
Associate professors: Jack T. Pincus, Daniel G. Caligiuri, Thomas F. G legitimacy, Nancy B. Hausman, Paul Leatong, Michael K. Revent, Richard Pigott, Thomas H. Stree, Duane E. Thompson, Julie F. West
Assistant professors: Rebecca A. Ellis, Cheryl L. Schmidt
Degrees offered: B.A., M.A., Ph.D.

Students majoring in industrial relations and human resources study experience dealing with labor relations and human resource management. The program is designed to give students a thorough background in these areas of study as well as an understanding of their application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include both theoretical and practical aspects of the field.

Graduates of the program prepare for a variety of law, staff, and professional positions in government, business, nonprofits, and education. Work area among which graduates are qualified include personnel management, wage and salary administration, staff benefits, selection and recruitment, performance appraisals, industrial training, manpower issues, collective bargaining, contract administration, grievance handling, dispute resolution, and labor legislation areas such as work opportunity, equal employment opportunity, age discrimination, and labor relations law.

Undergraduate Program

Requirements for the Bachelor of Business Administration degree with a major in industrial relations and human resources are.

1150 Lirtd. Labor Legislation 3 h.
1210 Collective Bargaining 3 h.
1218 Personnel Management 3 h.
1219 Industrial Relations 3 h.
1220 Employee Relations 3 h.
1221 Labor Economics 3 h.
1222 Labor Law 3 h.
1223 Labor Relations 3 h.
1224 Labor Unions 3 h.
1225 Labor Legislation 3 h.
1226 Labor Economics 3 h.
1227 Labor Law 3 h.
1228 Labor Relations 3 h.
1229 Labor Unions 3 h.
1230 Labor Legislation 3 h.
1231 Labor Economics 3 h.
1232 Labor Law 3 h.
1233 Labor Relations 3 h.
1234 Labor Unions 3 h.
1235 Labor Legislation 3 h.
1236 Labor Economics 3 h.
1237 Labor Law 3 h.
1238 Labor Relations 3 h.
1239 Labor Unions 3 h.
1240 Labor Legislation 3 h.
1241 Labor Economics 3 h.
1242 Labor Law 3 h.
1243 Labor Relations 3 h.
1244 Labor Unions 3 h.
1245 Labor Legislation 3 h.
1246 Labor Economics 3 h.
1247 Labor Law 3 h.
1248 Labor Relations 3 h.
1249 Labor Unions 3 h.
1250 Labor Legislation 3 h.
1251 Labor Economics 3 h.
1252 Labor Law 3 h.
1253 Labor Relations 3 h.
1254 Labor Unions 3 h.
1255 Labor Legislation 3 h.
1256 Labor Economics 3 h.
1257 Labor Law 3 h.
1258 Labor Relations 3 h.
1259 Labor Unions 3 h.
1260 Labor Legislation 3 h.
1261 Labor Economics 3 h.
Graduate Program

See "Interdepartmental Graduate Programs" in the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

E&M/CM 450 Cooperative Education Internship 4 s.h.
Pre-requisites: CM 101 and CM 224 with a grade of B.

E&M 100 Introduction to Marketing

General introduction to circulation of marketing environment and its objectives, with special reference to marketing decisions, buyer behavior and management of marketing environment. Prerequisite: E&M 411, E&M 503 (may be taken concurrently) and junior standing.

For Undergraduates and Graduates

E&M/CM 210 Principles of Marketing

Principles of circulation, marketing environment, and marketing decisions, emphasizing the role of the buyer in the marketing process. Prerequisite: CM 101.

E&M 350 Consumer Behavior

Emphasis on behavioral aspects of marketing, discussion of influences on buying behavior, including buying processes, consumer learning, personality, attitude, and social factors. University students, high school students, and others may be selected. Prerequisite: E&M 100.

E&M 205 Advertising Theory and Planning

Advertising as a professional service, emphasis on theory, planning, and executing strategic and tactical decisions. Tests advertising objectives, techniques, and strategies for retail merchants. Prerequisite: Graduate-level regulations for E&M.

E&M 150 Marketing Communications

Nature of marketing communications and their role in the marketing process. The use of advertising and sales promotion to create and coordinate promotional strategies and tactics that coordinate advertising, personal selling, sales promotion, packaging, public relations, and publicity. Readings, lectures, discussions, and exercises from behavioral science to develop the skills, know-how, and attitudes necessary to an effective, creative, and successful approach to marketing communications. Prerequisites: E&M 100.

E&M 450 Sales Management

Nature of personal selling and management of the sales force includes sales planning, sales force organization, training and motivation. Problems of sales management, the sales force, the sales manager, and the sales effort, compensation, and control. Prerequisites: E&M 401.

E&M 143 Senior Seminar in Marketing

Seminar topic selected for each term in consultation with instructor. Enrollment restricted to upper division undergraduate and graduate students. Prerequisite: consent of instructor.

E&M 350 International Marketing

Basic concepts and trends in international business, and major marketing principles of foreign markets, covering major trends in foreign markets and the influence of cultural and economic factors on marketing. Prerequisite: E&M 205.

E&M 150 International Business 3 s.h.

Prerequisites: coursework in business at an undergraduate level is regularly expected. Students may register for credit up to the maximum number of the six-week course. Prerequisite: consent of instructor.

E&M/CM 1050 Marketing Management-A.B.A.

Marketing's role in business and society, environmental influences on marketing, strategic and tactical decisions by the marketing manager. Prerequisites: E&M 100 and CM 201.

Primarily for Graduates

E&M 201 Advanced Readings in Marketing

Individual or group reading in selected topics in marketing. Prerequisite: consent of instructor.

E&M 200 Controversies in Marketing

In-depth study of a current topic in marketing. Prerequisite: consent of instructor.

E&M 250 Marketing Management B.A.

Marketing decisions, marketing strategy, marketing mix, and marketing control systems. Marketing strategy, marketing planning, and marketing control systems. Prerequisite: consent of instructor.

E&M 270 Product Management

The strategic importance of marketing planning. Examination of the nature of the environment faced by a professional marketing manager and the process and principles underlying effective marketing planning. Prerequisites: E&M 100 and CM 201.

E&M 300 Marketing Communications

Emphasis on advertising communications as critical between producers and consumers and how professional salesmanship influences advertising, marketing planning, and brand building. Prerequisite: coursework in marketing methods and knowledge of marketing theory.

E&M 350 Marketing Applications

Essential applications of marketing communications for the study of business and marketing problems. Emphasis on applications of advertising and sales promotion, analysis, and interpretation of market research data, problem solving, and sales promotion. Prerequisite: consent of instructor.

E&M 450 Marketing Research

The nature and use of market research and marketing intelligence, the role of marketing research in marketing strategy, planning, and marketing performance, and the design, implementation, and evaluation of marketing research and information systems. Prerequisites: E&M 205 and E&M 270.

E&M 305 International Marketing

An in-depth study of international marketing, emphasizing the role of international marketing in the context of international business. Prerequisites: E&M 205 and E&M 270.

E&M 260 Special Problems 3 s.h.

Special topics of current interest at the graduate level. Students may register for credit for more than one section of this course. Prerequisite: consent of instructor.

E&M 250 Advanced Readings in Marketing

Advanced study of a current topic in marketing. Prerequisites: E&M 100 and CM 224.

E&M 451 Seminar in Marketing

Seminar topic selected for each term in consultation with instructor. Enrollment restricted to upper division undergraduate and graduate students. Prerequisite: consent of instructor.

E&M 150 International Business 3 s.h.

Basic concepts and trends in international business, and major marketing principles of foreign markets, covering major trends in foreign markets and the influence of cultural and economic factors on marketing. Prerequisite: E&M 205.

E&M 150 International Marketing 3 s.h.
OM 532: Psychological Testing for Marketing
Applications
3 cr.
Prerequisite: A number of psychological scaling techniques that can be applied to consumer research in marketing, consumer behavior, and organizational behavior. Study of unidimensional and multidimensional scaling models, Thurstone and Thurstone scales, and questionnaires. Use of computer programs in data collection methods and computer algorithms, such as BMDP and MTS/3. Prerequisite: consent of instructor.

OM 523L: Seminar in Marketing
Examination of current marketing literature and current marketing practice. Prerequisite: consent of instructor.

OM 527: Research in Marketing
Individually guided research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

OM 530: Thesis in Marketing
Prerequisite: consent of instructor.

OM 538: Final Studies in Marketing
Prerequisite: knowledge regarding various aspects of marketing applied to real problems in ongoing business firms. Study of trends of student research topics, studies under faculty supervision. Prerequisite: consent of instructor.
# College of Dentistry

Dental Science Building

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Dean: James H. McLerran
Executive associate dean: John C. Montgomery
Assistant dean for research and director of Dow Institute: Christopher Eady
Associate dean for academic affairs: Nelson S. Logan
Assistant dean for clinical activities: Thomas V. Garber
Assistant dean for extramural affairs: C. Frederick Ede
Assistant dean for business and financial administration: M.J. Bernard
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; materiae; endodontics; operative dentistry; fixed partial prosthesis; removable partial prosthesis.

Oral Medicine
Investigative dentistry; oral diagnosis; dental radiology; oral pathology; anesthesia and pain control; oral surgery; periodontics. Selected courses in endodontology, operative dentistry, fixed partial prosthodontics, removable prosthodontics.

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 curriculum is introduced into 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 clerkships, 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 health programs that include hospitals, mental health institutes, the Geriatric 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 academic settings, such as practical business management and the relationship of the dentist to the community.

Promotions and Graduation

Student promotions and graduation are determined by the college of academic and professional performance committees, which are 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 committees may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is determined 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 for failure or defects or desires special consideration on problems concerning promotion to 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 college academic and professional performance committee’s decision. The recommendation of the appeals committee is submitted to the dean for final action.

State Board of Dentistry Licensure Examination

The states of Kansas, 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, many 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 Bowen Science 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 106,750 volumes, including the College of Dentistry’s collection of more than 16,000 volumes on dentistry and allied scientific subjects, and the more than 250 dental journals the college currently receives. This 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, clinical research space, offices, and an automated learning center. The north wing houses the anatomical education, educational media, and personnel offices.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local organization, the Iowa Student Dental Association, and in many local chapters of 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 2 per cent of the senior class are eligible for election to Omicron Kappa, the official 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 state-of-the-art Management System (S.I.M.S.) that provides the student with access to information necessary throughout dental training.

The instrument usage fee for the program leading to the D.D.S. degree is payable in...
installments over the first three years of the program. A fee for expendable laboratory supplies is charged each of the first two years. A $300 breakage fee also must be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Aid
Financial assistance for dental students is based on need. Eligibility is established by completion of the Free Application for Federal Student Aid (FAFSA). The FAFSA is available from the Office of Student Financial Aid. Students are encouraged to apply to FAFSA as early as possible and to also not delay until after the Dental Admission Test (DAT) is taken. Notifications of acceptance will be sent throughout December.

The prospective dental student is encouraged to enroll in 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 freshman year in dentistry (see Combined Liberal Arts-Dentistry Course in this section of the Catalog).

Pradental Studies
The basic academic requirement for admission to the College of Dentistry is the completion of no less than 34 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 preclinical program of study should include:

- English
- Satisfactory accomplishment in English composition, rhetoric, and speech
- Satisfactory completion of 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; requirements may be satisfied by a one-year course in either general biology or anatomy 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 36 semester hours of elective credit earned in any other college of the University satisfies students who enter the College of Dentistry to obtain a bachelor's degree from the College of Liberal Arts after successfully completing the freshman 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 residency 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.

- 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 applications are 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 admission. Applicants accepted after April 15 must submit the deposit within two weeks after notification of admission. This deposit is not refundable, but is credited toward the first year's tuition. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

- Additional Admission Considerations

- Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. 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.
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
6.0 h.

60.112 General Histology for Dental Students
4.0 h.

60.114 Oral Histology and Embryology
1.0 h.

61.322 Health Sciences Microbiology
4.0 h.

69.203 Introduction to Human Pathology
1.5 h.

71.111 Pharmacology for Health Sciences: Dental Students
5.0 h.

72.152 Mammalian Physiology
4.0 h.

93.463 Biochemistry for Dental Students
4.0 h.

Courses

Nondepartmental

120.110 Transfer Credits Accepted
am.

120.139 First-Year Contingency Sessions
3.0 h.

120.145 Introduction to Dentistry
Dental School students.

120.325 Dental Materials
Dental School students.

120.326 Microbiology
Dental School students.

120.327 Dental Therapeutics
Preclinical students.

120.375 Third-Year Contingency Sessions
3.0 h.

120.377 Progress Ahead
Preclinical students.

120.380 Fourth-Year Clinics
Dental School students.

120.385 Advanced Clinical Cooperation
Dental School students.

Undergraduate Program

Qualification by education and license, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing services for the prevention and control of oral disease.

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 Histology; 71.130 Intermediate Pharmacology; and 82.61 Introduction to Periodontology; 82.61 Operative Dentistry Laboratory for Hygienists; 86.60 Introduction to Oral Pathology; 86.61 Oral Dental Hygiene for Dental Hygienists; 86.62

Dental Hygiene

Chair: Patricia Binns
Professor: Janis Axline
Associate professors: Pauline Brue, Nancy Stuy Lefkov, Elizabeth Fetter, Kay Mosher, Nancy Thurman
Assistant professor: Janis Axline

B.A. degrees offered: B.S., B.S.D.

Undergraduate Program

Dental Hygiene

Chair: Patricia Binns
Professor: Janis Axline
Associate professors: Pauline Brue, Nancy Stuy Lefkov, Elizabeth Fetter, Kay Mosher, Nancy Thurman
Assistant professor: Janis Axline

B.A. degrees offered: B.S., B.S.D.

Undergraduate Program

Qualification by education and license, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing services for the prevention and control of oral disease.

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.

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Dental Radiology for Dental Hygienists; 87.63 Anesthesia; 87.51 Dental Anatomy; and 88.52 Head and Neck Anatomy.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice. These courses include Dental Hygiene Core I and II, which are prerequisites for the completion of core dental sciences with the theory and practice of clinical dental hygiene.

During the senior year, students advance their clinical skills in 8645 Clinical Dental Hygiene I and II, Clinical Advanced Periodontics for Dental Hygiene II, 8646 Dental Hygiene Core II, which integrates all of the underlying dental hygiene sciences with the theory and practice of clinical dental hygiene.

This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.

Seniors receive additional clinical experience in 8646 Clinical Dental Radiology for Dental Hygienists. Weekly lectures and seminars reinforce clinical learning in 8646 Seminar: Dental Hygiene Concepts and Practice.

Senior students also are enrolled in 88.38 Practicum: Community Dental Hygiene; 88.38 Seminar: Community Dental Health; 77/112 Designing and Developing Instructional Materials; 225.109 Biotransport 112 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 discuss broad community health issues related to the practice of dental hygiene care. Field experiences enable students to apply knowledge of human behavior, basic principles of communication and interviewing, environmental 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 60 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 (or transfer students) of zoology and general biology—37.1 Introduction to Animal Biology;

Three semester hours of inorganic chemistry—47.1 General Chemistry I;

Three semester hours of organic chemistry, including biochemistry—48.1 General Chemistry II;

Four semester hours of microbiology—61.146 Microbiology;

Three semester hours of nutrition—17.4 Food, Nutrition, and You;

Three semester hours of psychology—31.1 Elementary Psychology;

Three semester hours of sociology—45.1 Introduction to Sociology Principles;

Four semester hours of anatomy—60.1 Elementary Human Anatomy;

Four semester hours of physiology—72.136 or 72.140 Human Physiology.

These prerequisites provide the educational basis for the dental hygiene course of study. In addition, students admitted into the professional program of study must complete basic certification in cardiopulmonary resuscitation (CPR) prior to enrollment. 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.

Students begin the professional program in dental hygiene in the fall only. Students enrolled in 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 to qualify 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, oral 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 and basic knowledge of and experience in conducting research.

The curriculum design provides the student with major course experiences in the major area of dental hygiene theory. In the biological field, this consists of the pathobiology of dental plaque, including plaque microbiology, biochemistry, 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 infrastructural 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 semester, it is recommended that the beginning of the fall semester is preferred. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores are due as soon as possible prior to the semester for which admission is desired. Most students should expect to complete the program in 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.

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; 88.202 Research: Dental Hygiene; 88.204 Selected Topics in Dental Hygiene Education; 88.305 Social Factors and Oral Health; and 88.505 Thesis: Dental Hygiene.
Courses
For Undergraduates
8150 Dental Anatomy. 3.5 hr.
Include dental terminology, the morphological characteristics of teeth, their positional relationships and incisal inclinations; emphasis on the relationship of teeth to the oral cavity and the dental occlusion.
8202 Head and Neck Anatomy. 3.5 hr.
Levées on the anatomy of the head, neck and face, including craniofacial anatomy.
8210 Dental Hygiene Care I. 7.5 hr.
Introduction to general hygiene theory, clinical skills, oral disease, dental hygiene theories related to the prevention of common dental hygiene services.
8210 Dental Hygiene Care II. 5.0 hr.
Emphasis on applications of dental hygiene theory in the performance of intermediate clinical dental hygiene and oral disease control procedures.
8250 Clinical Dental Hygiene. 7.5 hr.
Practice of advanced dental hygiene procedures with emphasis on providing comprehensive preventive and clinical services.
8280 Seminar: Dental Hygiene Concepts and Practice. 5.0 hr.
Review of current research and advances in preventive protocols: ethical, legal, and social responsibilities of health care providers, current and emerging roles in dental hygiene practice.
8270 Seminar: Community Dental Health. 4.5 hr.
Knowledge of dental health, dental care, and educational and research emphases in field experience in oral health services, health care and educational programs.
8280 Seminar: Community Dental Health. 4.5 hr.
Study of factors influencing the oral health of the public, including need and demand for dental care, funding of dental care, provider and patient relationships, and active and passive disease interventions.
8210 Independent Study. 3.0 hr.
Designed for students who plan to pursue additional study or to explore careers in dental hygiene education: research or public health.
For Graduates
8201 Seminar: Dental Hygiene Literature Review. 2.5 hr.
Analysis of dental hygiene literature from political, sociological, ethical and professional factors influencing trends and current status of knowledge in field of dental hygiene.
8230 Research Methods in Dental Hygiene. 4.5 hr.
Literature review, selection of research designs, experimental design, and design of laboratory tests.
8230 Selected Topics in Dental Hygiene. 4.5 hr.
Theory and research applied to specific areas of dental hygiene education in clinical, didactic, or field settings: emphasis on theoretical and methodological issues.
8230A Advanced Clinical and Oral Health. 4.5 hr.
Evaluation of research methods used in dental hygiene clinical, didactic, and didactic settings: emphasis on hygiene and oral health care.
8230D Thesis/Dental Hygiene Research. 1.0 hr.
Completion of thesis preparation and defense.

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 both didactic and laboratory courses. In clinical endodontics, the student studies both normal and pathological conditions of the dental pulp and periapical tissues, emphasizing the areas of prevention and diagnosis of pulpal 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 45 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 60 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 accepted. Completion of 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 the dentist to develop his or her skills and acquire a breadth of knowledge in the specialty of endodontics for teaching and practice purposes, to 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 pursuit of academic research; and to develop the administrative, research and teaching skills. An applicant for the graduate program in endodontics must be an accredited graduate 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.

Endodontics
Head: Richard E. Walton
Professor: Richard E. Walton
Professor Emeritus: Allen M. Burges
Associate professor: Keith V. Kent
Assistant professor: Sandra Madison
Degree offered: M.S.
Courses

Predoctoral
89.018 Clinical Endodontics 2 h.
Lectures, seminars, and laboratory projects designed to help students understand endodontics, root canal therapy, and technical procedures necessary for treatment of pulpal problems in human teeth.
89.156 Clinical Endodontic Practice 2 h.
Clinical practice and management of diagnostic and treatment of root canal and periapical and periodontal problems. Certain aspects are also provided to patients by students under faculty supervision.
89.165 Clinical Endodontics Seminar 2 h.
Lectures and seminar course describing current concepts of tooth and pulp, histology, anatomy, and clinical procedures, endodontic endodontic techniques, endodontic endodontic techniques, endodontic endodontic techniques, endodontic endodontic techniques.
89.170 Spheroid Topics in Endodontics 1 h.
Graduate
89.265 Endodontic Literature Review I 2 h.
89.266 89.267 89.267 89.268 89.269 review of pertinent and relevant periodicals and other reference sources for understanding endodontology. The reviews are topical and are written by graduate students under the faculty's guidance.
89.284 Endodontic Literature Review II 2 h.
89.285 89.286 Endodontic Literature Review III 2 h.
89.288 Endodontic Literature Review IV 2 h.
89.290 Research in Endodontics 4 h.
Topics: accessing, preparing, and managing research, conducting experimental research, and gathering of data, and writing the thesis and dissertation.
89.291 Thesis Preparation in Endodontics 3 h.
89.294 Endodontic Surgery I 3 h.
Evaluation of endodontic cases that require surgical intervention, diagnosis and treatment of oral and maxillofacial pathologies, graduate endodontic endodontist's endodontist's endodontist's endodontist's endodontist's endodontist's.

Family Dentistry

Head: David L. Holl
Professor: Donald L. Hall
Associate professors: Larry J. Grobbel, Howard W. Dedman, John F. Denning, Gwendolyn Williams Assistant professors: Jeffery V. Marzen, Gwendolyn Williams

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 care of individual patients. The experience encompasses approximately three-fourths of the senior year.

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 communication, and interpersonal skills are emphasized.

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
89.010 Introduction to Prosthodontics 3 h.
89.010 Introduction to Prosthodontics is not a separate course, but rather part of a concentrated clinic program of patient care. It

Fixed Prosthodontics

Head: Kenneth A. Turner
Professor: Keith E. Theriau, Kenneth A. Turner
Assistant professors: Lawrence Huber, Steven A. Appel, Richard R. Dwyer

Predoctoral Program

The department participates in the D.D.S. program for dental students at all levels. Preclinical courses at the first and second level prepare the student with a background in materials and techniques used in fixed prosthetic treatment. Third-year and fourth-year students gain expanded skills in a concentrated clinical program of patient care in the specialty area. The
Graduate Programs

The department offers Master of Science and certificate programs. The primary purpose of the M.S. program is to train and 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 prosthodontic theory and treatment, and includes elective courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biochemistry or other quantitative 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 into the programs for the master's degree is a D.D.S. or D.M.D. degree or its equivalent.

Courses

Predoctoral

81120 Prosthodontic Materials Laboratory 2.5 b. The study of materials to handle and reproduce natural dentition and to achieve esthetic and functional appearances in laboratory and clinical procedures. Curve of 86.120. 81121 Dental Materials Properties of metals, alloys, and ceramic materials to determine their mechanical and physical properties of basic dental materials. 1.5 b. 81122 Orthodontics I Orthodontic terminology and concepts of occlusion and treatment. 2.5 b.

Operative Dentistry

Head: Wallace W. Johnson
Professor: Kuo Chia Ong, Gerald Emsliz, James Taft, William W. Johnson
Associate professor: Dan Boyer, Vincent Vaccari, Calvin J. St. John, Robert B. Reulbach
Assistant professor: Thomas Schellen
Degree offered: M.S.

Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamental to the overall education of the dentist student. The operative dentistry curriculum is designed so that the didactic 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 graduate program 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 program for the student to pursue courses that are of particular interest to him. Students may take the program for either a Master of Science degree or a certificate in operative dentistry.

Requirements for the M.S. degree include satisfactory completion of 48 semester hours of specified graduate-level courses, preparation of an acceptable thesis based on original research, and formal defense of the thesis and examination by an examining committee.

Students should plan to fulfill their own financial support for the research and thesis.

Graduation

81120 Operative Dentistry Laboratory for Students 2.5 b. Under Basic Dental Science and Materials and in the immediate presence of an instructor.

Predoctoral

81120 Dental Anatomy Lectures 1.5 b. Lectures and seminars concerning dental anatomy, internal structure, in the grad program.

81121 Dental Laboratory I 2.5 b. Specialized study of fixed prosthodontic laboratory and resin and plastic techniques.

81122 Operative Dentistry I 1.5 b. Empirical studies of research materials and techniques, in the immediate presence of an instructor.

81140 Operative Dentistry II 1.5 b. Laboratory studies of clinical application of principles and techniques of cavity preparation, removal of caries, tooth form, tooth color, and the effects of materials and techniques in esthetics and function, including esthetic restorations and anesthetic restorations and anesthetic restorations and anesthetic restorations.

81141 Operative Dentistry III Chair Clinical training in operative dentistry on patients in the graduate clinic. For second year students.

81142 Operative Dentistry IV Clinic Clinical training in operative dentistry on patients in the graduate clinic. For third year students.

81143 Operative Dentistry V Clinic Clinical training in operative dentistry on patients in the graduate clinic. For fourth year students.
Oral Pathology and Diagnosis
Head: Gilbert L. Libby
Professor: Nancy L. Herron, Leslie H. Higs
Counselor: Mariposa A. Seiter, William R. Tate, Murray, W. Hill
Associate professors: William J. Nash, Philip J. Kuch, Clayton D. Williams
Assistant professors: Michael W. Puketenas, Jayne J. Hay, Steven D. Vozos
Adjunct associate professors: George C. Gravina, Thomas P. Williams
Adjunct assistant professor: Eric C. Dallin
Degree offered: M.S.

Predoctoral Program
The department's primary objective is to provide instruction to dental students and other health-profession students in the etiology, natural history, and diagnosis of diseases manifest in and about the oral cavity. Instruction includes the clinical, laboratory, radiologic, and microscopic features of these diseases and their management. There is also an emphasis on the role of dental therapy and the influence of dental treatment on systemic diseases.

Graduate Programs
Master of Science
Advanced instruction is available for graduate-level students in health sciences and related fields who are preparing for specialty practice or careers in teaching and research in the areas of oral pathology, oral diagnosis, oral medicine, and dental radiology.

Admission:
Applicants must have completed an accredited program leading to the D.D.S. or D.M.D. degree from an accredited college with a minimum cumulative grade-point average.
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

87040 Introduction to Oral Pathology 1 sh. Evaluation of oral, physical, and mental status and oral local manifestations of diseases in the creation of clinical disease. Required for dental hygiene.

87071 Oral Pathology for Dental Hygienists 1 sh. Study of oral disease provides basic information required to differentiate normal from diseased tissue and forms a general understanding of pathological processes involved in oral diseases. Required for dental hygiene.

87072 Dental Radiology for Dental Hygienists 1 sh. Technical techniques, radiography, imaging, processing, and recording time, first class.

87073 Clinical Dental Radiology for Dental Hygienists 2 sh. Supervised clinical experience in taking dental radiographs, processing and recording time, second level.

Predoctoral

87120 Introduction to Diagnosis and Pathology 1 sh. Evaluation of disease, methods of clinical and radiographic examination and record keeping, correlation of basic and clinical medicine.

87130 Oral Pathology 4 sh. Comprehensive introduction to the normal and pathological processes involved in the human body, focusing on oral pathologic processes, second level.

87145 Prophylactic Diagnosis and Radiology 4 sh. History and physical examination, medical problems of oral diseases, and clinical pathology for clinical practice. Focus on clinical practice, lecture, clinical, seminar, and self-paced.

87155 Systemic Disease Manifestations 2 sh. Review and correlation with clinical practice to develop clinical judgment to provide the student with the basic information required to evaluate patients.

87160 Clinical Oral Pathology and Diagnosis 4 sh. Study of the practice of diagnosis, clinical examination in oral pathology, and histologic methods, material science, histologic techniques, clinical practice, and histologic interpretation, third level.

87161 Clinical Dental Radiology 2 sh. Supervised experience in taking and processing dental and orthopedic radiographic images, third level.

87190 Topics in Oral Pathology 2 sh. Lectures and demonstrations in concentrated areas of specific interest to students. May be repeated with different reading to individual and advanced level.

Graduate

87200 Oral Pathology and Diagnosis Literature Review 2 sh. Assigned reading and preparation of annotations. Permissible repeat is in different.


ORAL Pathology, Laboratory, and Histological Features of Disease 5 sh. Emphasis will be on teaching effective communication, clinical decision making, and oral pathology, with the emphasis on integrating clinical and basic science knowledge. Permissible repeat is in different.

87237 Surgical Oral Pathology 3 sh. Practical experience in developing operating and surgical pathology techniques. May be repeated. Permissible repeat is in different.

87240 Research in Oral Pathology and Diagnosis 5 sh. Permitted only for M.S. candidates but may be open to other graduate students if justified by the availability of research funds and the requirements of the student. Permissible repeat is in different.

87250 Hospital Oral Pathology 3 sh. Participation in clinical practice related to oral pathology, including physical diagnosis, histopathology, and clinical aspects of oral pathology.

87251 Dental Radiology Advanced Clinics 2 sh. Advanced clinical and technical radiographic techniques and clinical pathology.

87252 Advanced Oral Pathology 3 sh. Introductory study of disease involving oral, oral, and systemic disease course. Specific topics may be repeated. Permissible repeat is in different.

87255 Hospital Oral Pathology 1 sh. Participation in clinical practice related to oral pathology, including physical diagnosis, histopathology, and clinical aspects of oral pathology.

ORAL Pathology 3 sh. For advanced students. Permissible repeat is in different.

87260 Oral and Maxillofacial Surgery

Acting head: John C. Montgomery

Directors of graduate studies: Kenneth G. Adamec (oral and maxillofacial surgery), G. A. Zarbic (facial anatomy)

Director of predoctoral studies: Robert J. A. Fredman

Professors: Leslie H. Higginbotham, John R. McGregor, G. A. Zarbic

Associate professors: Mary L. Hao, Stanley A. McCall

Assistant professors: Robert J. F. Gwinn, Karen S. Zamir, Gretchen L. Seibert

Degree offered: M.D.

The Department of Oral and Maxillofacial Surgery combines clinical and surgical training on an individual basis toward the career as a clinician. Our program is based in the Residency Training Program at the Hospital of the University of Iowa and Clinics. Graduate study is based primarily in the Residency Training Program at the Hospital of the University of Iowa and Clinics.

Predoctoral Program

The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with broad 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 surgical problems undertaken. The clinical portion of the curriculum allows the student to develop surgical skills and apply the theoretical knowledge acquired in the didactic courses. The theory and application of anesthetic techniques, intravenous sedation, and nitrous oxide anesthesia techniques are presented through didactic and clinical experiences.

Graduate Programs

Residency Program

The aim of the residency program in oral and maxillofacial surgery is to prepare students for practice specialty. The program is designed to combine clinical and didactic training on an individual basis. Every effort is made to adjust 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 Graduate Training of the American Society 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 the training.

The residency period covers four years of hospital training, providing an orientation to basic surgical procedures, introduction to basic and clinical sciences, achievement of the highest level of clinical performance with 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, surgery, anatomy, pathology, physiology, and microbiology, and reviews closely related disciplines such as neurosurgery, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the operating room experience are important aspects of the residency 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 pathology assume great clinical significance, and increased responsibility in the operating room as first assistant surgeon further develops surgical judgment and skills.
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 to work 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:

- The Graduate Record Examination (GRE)
- Aptitude 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 third of the class or in the top twenty of the class. The academic record will be reviewed for evidence of ability to complete dental school requirements.

Candidates selected for acceptance will be notified in mid-June and the appointment will be made within one month. A list of accepted candidates will be available on the University of Iowa Hospitals and Clinics website.

Courses

Dental Hygiene

Dental hygiene is a critical component of the overall goal of the University of Iowa Hospitals and Clinics. The dental hygiene program is designed to prepare students to enter the dental hygiene profession.

Predoctoral

- Principles and techniques of oral hygiene, plaque control, and prophylaxis.
- Principles and techniques of oral disease prevention and control.
- Principles and techniques of oral mucosal disease prevention and control.
- Principles and techniques of oral cancer prevention and control.
- Principles and techniques of oral surgery prevention and control.
- Principles and techniques of oral medicine prevention and control.
- Principles and techniques of oral anatomy prevention and control.
- Principles and techniques of oral physiology prevention and control.
- Principles and techniques of oral pharmacology prevention and control.
- Principles and techniques of oral microbiology prevention and control.
- Principles and techniques of oral radiology prevention and control.
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- Principles and techniques of oral pharmacology prevention and control.
- Principles and techniques of oral microbiology prevention and control.
- Principles and techniques of oral radiology prevention and control.
- Principles and techniques of oral pathology prevention and control.
Orthodontics

Head: John S. Gale
Professor: George F. Anderson, Sanford E. Jacobs, Charles R. Kemeny, Robert N. Stanley
Degree offered: M.S.

Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, 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 (Orthodontists) in diagnosing and treating any malocclusion of the teeth requiring comprehensive care. The specialist should be familiar with and able 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, satisfies 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, cleft lip and palate 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 1 for the class starting July 1. Applicants are required to come to the University for interviews with department faculty.

Courses

Predoctoral

59:115 Growth and Development 1 a.h.
Provides basic and introductory information about general growth and development, with emphasis on the craniofacial region.

59:135 Orthodontic Diagnosis in the Biological Foundation 1 a.h.
Introduction to concepts of biologic and craniofacial basis for orthodontic diagnosis and the philosophy and concepts of orthodontic problems. Topics include development of dentition, physiology of orofacial structures, malocclusion and its relationship to occlusal function, and the role of orthodontics in the prevention of facial growth, and growth of the maxilla and facial skeleton.

59:136 Orthodontic Laboratory 1 a.h.
Design and construction of orthodontic appliances: study of art, color, bonding, and materials.

59:137 Orthodontic Treatment 1 a.h.
Ranges from patient management to the use of appliances for correcting some maxillary that the general practitioner can handle in his or her office.

59:138 Orthodontic Geared Practice 1 a.h.
Case analysis designed to help students develop ability to differentiate between simple and complex orthodontic problems. Orthodontic classifications, diagnosis, and treatment planning are presented as a combination including treatment of individual or group of malocclusions, exclusive to clinical practice.

59:179 Orthodontic Clinic 2 a.h.
Clinical experience in orthodontic diagnosis, treatment, and patient care. The student should be exposed to different specialists in orthodontic practice and be prepared to use these clinical experiences in their future practice of orthodontics.

Graduate

Graduate students: general biological perspective. Offered only upon request for students intended to analyze, develop system's perspective or skill at applied biology: including information about status of biology as a science.

59:233 Advanced Orthodontic Techniques 2 a.h.
Lecture and discussion on advanced orthodontic techniques, including bonding, banding, and special procedures.

59:262 Diagnosis and Treatment Planning 2 a.h.
Diagnostic and treatment planning concepts, principles, and application. Treatment of specific types of orthodontic problems with emphasis on the clinical case histories of patients treated in graduate clinic.

59:263 Advanced Orthodontic Techniques 2 a.h.
Advanced clinical and research knowledge that the student must acquire or develop to be effective in practice. Topics include the following: malocclusions, orthodontic problems, and diagnosis of cases; orthodontic treatment of patients.

59:264 Biomechanics 2 a.h.
59:265 Facial Growth 1-2 a.h.
Theory and presentation of the growth potential and its application of correct concepts of facial growth to the treatment of orthodontic with various types of malocclusion during active growth period.

59:297 Case Analysis Seminar 1 a.h.
Seminar discussion of cases and treatment of specific types of orthodontic problems and the clinical case histories of patients treated by social orthodontic procedures.

59:309 Orthodontic Practice 2 a.h.
Orthodontic practice of the clinician.

59:313 Orthodontic Seminar 1 a.h.
Debates, discussion, critical defense of orthodontic problems, and problems that are emerging, or have complex orthodontic treatments.

92:313 Problems: Orthodontics 2 a.h.

92:322 Research Orthodontics 1 a.h.
Reading of current biological and technical publications; student critically evaluates articles and is encouraged to think critically about new knowledge and to accept or reject concepts for developing their points before the class.

92:325 Practice Management 1 a.h.
Patient care from the initial appointment to the establishment, maintenance, and growth of the practice and dental office.

92:327 Cephalometrics 1 a.h.
Growth of craniofacial and related structures. Of interest to orthodontists in the study of age-related changes in craniofacial growth and development.

92:328 Surgical Orthodontic Seminar 2 a.h.
Surgeons and other specialists in the field of orthodontics. The seminar includes both clinical and research aspects of craniofacial growth.

92:330 Basic Orthodontics for the Practitioner 2 a.h.
Provides a basic orthodontic background for graduate pedodontics practice; the course has both clinical and research aspects.

92:339 Orthodontic Clinic 2 a.h.
Clinical experience in the orthodontic diagnosis, treatment, planning, and treatment of a limited number of specific cases. Course work and assignment designed to provide appropriate experience for training in the pedodontic specialist, student must have prior clinical record of comparison to treatments.

Pediatric Dentistry

Head: Henry W. Peckham
Professor: Clemene A. Pelz, Arthur J. Novak, Murray B. Potter, John H. Waters
Associate professors: James W. Curl, Stephen T. Cooper, Mark E. Jenac
Adjunct clinical assistant professor: Donald C. Cusson
Adjunct clinical assistant professor: Michael J. Novella, America O. LaCava
Assistant professor: Mary Beth Goodall
Degree offered: M.S. (certificate also offered)

The Department of Pediatric Dentistry provides instruction in dental and graduate students in the prevention and treatment of dental diseases in children. Instruction consists didactic, laboratory, and clinical experiences, and gives special consideration to investigation 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
DENTISTRY/Pediatric Dentistry

Dental Education of the American Dental Association.

Students are trained in all phases of pediatric dentistry, to permit them career choices in pedodontics, education, or research. Approximately 50 percent of the program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 20 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 Pediatric in the College of Medicine, and with the University Hospital and School and the University of Iowa Hospitals and Clinics permits emphasis on 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 regularly 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 caries, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Faculty

Faculty members hold numerous national and state offices, committee memberships, consultancies, 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 are specialists and Diplomates of the American Board of Pediatric Dentistry.

Financial Aid

Significant aid is available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, and the Department of Health and Human Services.

Admission

Prospective students must apply to the Graduate College.

Courses

Predoctoral

92-184 Pediatric Dentistry Diagnosis and Treatment 2 h.

Preclinical: Concept of growth and development; behavior, management, and preventive-maintenance techniques for children; techniques of extraction; and instruction in dental hygiene.

92-193 Clinical Pediatric Dentistry 2 h.

Comprehensive clinical management of pediatric patients.

92-185 Special Seminar in Pediatric Dentistry 1 h.

Discussions of patients management, care of traumatic and congenital anomalies.

Graduate

18-223 Advanced Dentistry (Microscopy 1 h.

New in 1876, advanced microscopy.

18-224 Advanced Dentistry (Pediatric Dentistry 1 h.

Discussions of growth and development, behavior, management, preventive-maintenance techniques, and diseases of pediatric patients.

18-225 Research in Pediatric Dentistry 1 h.

Research design and the completion of an original research project is required, with results presented in a publishable form.

18-226 Oral Implantation 1 h.

Preparation of original research projects and examination of results.

18-227 Advanced Pediatric Dentistry 1 h.

Comprehensive clinical management of pediatric patients.

18-228 Pediatric Dentistry (Pediatric Dentistry 1 h.

Areas of general anesthesia, operative therapy, endodontics, and surgical therapy.

18-229 Pediatric Oral Diagnosis 1 h.

Principles and methods of making a physical evaluation of the child.

18-230 Pediatric Therapy for Dental Proprietary 1 h.

Principles of therapy in various disease states.

18-231 General Anesthesia (Pediatric Dentistry 1 h.

A selective course intended for students who are interested in pediatric dentistry.

18-232 Practice Planning in Pediatric Dentistry 1 h.

Observations and problems in current teaching procedures.

Special Seminars

92-2243 Pediatric Dentistry 1 h.

Special lectures on selected topics.

Periodontics

Head: Philip A. Lambly


Degree offered: M.S.

Predoctoral Program

The Department of Periodontics is concerned with the effects of periodontal disease on the patient; the effects of periodontal disease on the patient; and the prevention of periodontal disease. Its predoctoral program combines didactic, laboratory, and clinical experience, with emphasis on applying the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal disease.

Graduate Programs

Master of Science

The Master of Science degree is designed primarily to provide training for teaching, research, and specialization in periodontology. The program requires:

- Satisfactory completion of at least 28 semester hours of required and elective coursework;
- Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and 3 semester hours of thesis preparation;
- Satisfactory completion of a written comprehensive examination.

Completion of the program requires a minimum of 24 calendar months of full-time study.

Ad Hoc Interdisciplinary Ph.D. Program

Under Graduate College regulations, proposals for interdisciplinary doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics will assist in developing individual doctoral programs designed to train students for careers in teaching and research in periodontal diseases. Such programs will be interdisciplinary with ams in biochemistry, microbiology, physiology, or neurobiology.

Certification

Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, the certification program provides an advanced foundation for the clinical practice of periodontics.

Completion of the program requires 24 calendar months of full-time study, with:

- Satisfactory completion of a minimum of 60 semester hours of required and elective courses;
- Satisfactory completion of a comprehensive written and oral examination;

An acceptable literature review or research paper.
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 Coming National Dental Board Examination scores if available, are required. Interviews are encouraged, but not mandatory.

Facilities

The department has 20 modern, well-equipped operating rooms 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, 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 interrupted studies. Assistantships and loans are offered, dependent upon available resources.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>20:100</td>
<td>Periodontics</td>
<td>3 s.h.</td>
<td>Comprehensive clinical management of the periodontal patient</td>
</tr>
<tr>
<td>20:105</td>
<td>Periodontology</td>
<td>3 s.h.</td>
<td>Comprehensive concepts in periodontics and the overall management of patients covered by tobacco and/ornicotine products</td>
</tr>
</tbody>
</table>

Graduate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:301</td>
<td>Advanced Periodontology</td>
<td>3 s.h.</td>
<td>Provides an in-depth graduate student with comprehensive review of periodontal therapy. Offered spring semester</td>
</tr>
<tr>
<td>20:302</td>
<td>Clinical Seminar in Periodontics</td>
<td>1 s.h.</td>
<td>Comprehensive management of periodontal patient, with emphasis on treatment planning and care, documentation and presentation for complete dental therapy; compare dental science seminars included. Required each fall and spring semester</td>
</tr>
<tr>
<td>20:304</td>
<td>Methods of Instruction in Periodontics</td>
<td>1 s.h.</td>
<td>Experience in course design in periodontics, including behavioral objectives and methods of evaluation</td>
</tr>
<tr>
<td>20:305</td>
<td>Periodontal Disease</td>
<td>3 s.h.</td>
<td>Practical experience in operating, seminar lecture, and clinical teaching in periodontics</td>
</tr>
<tr>
<td>20:325</td>
<td>Periodontics: General Periodontology</td>
<td>3 s.h.</td>
<td>Emphasis on periodontal disease and therapy of major disease when examined in clinical periodontal practices. Offered spring semester</td>
</tr>
<tr>
<td>20:326</td>
<td>Periodontics: Pathology and Microbiology</td>
<td>3 s.h.</td>
<td>Emphasis on periodontal disease and therapy of major disease when examined in clinical periodontal practices. Offered spring semester</td>
</tr>
<tr>
<td>20:331</td>
<td>Dental Microbiology</td>
<td>1 s.h.</td>
<td>Introduction to basic concepts of microbiology and its application to periodontal disease</td>
</tr>
<tr>
<td>20:401</td>
<td>Oral Health Science</td>
<td>1 s.h.</td>
<td>Introduction to basic concepts of microbiology and its application to periodontal disease</td>
</tr>
<tr>
<td>20:402</td>
<td>Biocological Aspects of Periodontology</td>
<td>3 s.h.</td>
<td>Emphasis on periodontal disease and therapy of major disease when examined in clinical periodontal practices. Offered spring semester</td>
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</tbody>
</table>

Predoctoral Program

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>20:141</td>
<td>Periodontic Methods I</td>
<td>1 s.h.</td>
<td>Emphasis on periodontal problems, diagnosis, treatment, and prevention of periodontal disease, maintenance of periodontal health</td>
</tr>
<tr>
<td>20:142</td>
<td>Periodontic Methods II</td>
<td>3 s.h.</td>
<td>Emphasis on periodontal problems, diagnosis, treatment, and prevention of periodontal disease, maintenance of periodontal health</td>
</tr>
</tbody>
</table>

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, students may also choose an academic track. A high degree of professional competency is required in each 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 academic years to complete all degree requirements.

Preventive and Community Dentistry

Acting head: Neil S. Logan, D.D.S.
Professors emeriti: Nabum C. Hae, W. Phillip Plan
Associate professors: Nicoa C. Cihan, Howard H. Field, Frank J. Kagarise, Dorothy Rowen, John M. Titus
Assistant professors: Jim Hendel, Steven Leys Clinical instructor: Howard Conner
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 fulfill 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.

<table>
<thead>
<tr>
<th>Courses</th>
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<tr>
<td>Predoctoral</td>
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<tr>
<td>84:120 Predoctoral Materials Laboratory</td>
<td>2 a.h.</td>
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<tr>
<td>Theory and manipulation of dental materials with basic applications.</td>
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<tr>
<td>84:340 Removable Prostodontics Techniques</td>
<td>3 a.h.</td>
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<tr>
<td>Lecture</td>
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<tr>
<td>Technical procedures in construction of complete and removable partial dentures.</td>
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<tr>
<td>85:340 Removable Prostodontic Techniques</td>
<td>3 a.h.</td>
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<tr>
<td>Laboratory</td>
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<tr>
<td>Laboratories exercises in construction of complete and removable partial dentures.</td>
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<tr>
<td>85:500 Removable Prostodontics</td>
<td>4 a.h.</td>
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<tr>
<td>Seminar and clinical experience results examination, diagnosis, prognosis, and treatment of patients requiring complete and removable partial dentures.</td>
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<tr>
<td>Graduate</td>
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<tr>
<td>86:220 Coupler Denure Seminar I</td>
<td>1 a.h.</td>
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<tr>
<td>Review of current research in principles, procedures, and concepts of complete denture construction.</td>
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<tr>
<td>86:220 Removable Partial Denture Seminar I</td>
<td>1 a.h.</td>
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<tr>
<td>Review of current research in principles, procedures, and concepts of removable partial denture construction.</td>
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<tr>
<td>84:227 Complete Denture Seminar II</td>
<td>1 a.h.</td>
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<tr>
<td>Review of past research in principles, procedures, and concepts of complete denture construction.</td>
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<tr>
<td>84:230 Research: Removable Prosthodontics</td>
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<tr>
<td>Literature review, problem presentation, and data collection for selected research project.</td>
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<td>Preparation and defense of thesis for research project.</td>
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<tr>
<td>84:246 Advanced Clinical Removable Prosthetics</td>
<td>arr.</td>
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<tr>
<td>Treatment of patients requiring complete and removable partial dentures.</td>
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<tr>
<td>84:249 Technique: Removable Prosthodontics</td>
<td>arr.</td>
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<tr>
<td>Advanced and modern clinical techniques in construction of complete and removable partial dentures.</td>
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<tr>
<td>84:250 Practice Teaching: Removable Prosthetics</td>
<td>arr.</td>
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<tr>
<td>Clinical and classroom teaching experience assigned by advisor.</td>
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<tr>
<td>84:339 Journal Club</td>
<td>1 a.h.</td>
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<tr>
<td>Review of current literature in prosthodontics</td>
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<tr>
<td>84:251 Library Assignment: Removable Prosthodontics</td>
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<tr>
<td>Discussion of assigned readings that are considered classics in removable prosthodontics literature.</td>
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Dean: Charles W. Case
Associate Dean: Joan A. Van Dyke
Associate Deans: Robert M. Fish, R. Jerold Strike
Director, Iowa Testing Program: Leonard Feld
Director, Educational Placement: Judith D. Hendron
Degrees offered: B.A., B.S., M.A.T., M.A., M.S., Ed.S., Ph.D.
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, N100 Old Capitol Center.

General Requirements

Before being formally admitted to a Teacher Education Program, an undergraduate student must have: Being 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 in College-level courses; 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 retarded 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 opportunities 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) of their application to programs. Late applications will be considered on a first-come, first-served basis only when places are available.

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" and be admitted to the Master of 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 graduate objective GPA; 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 student status. 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 practice, devoted to supervised student teaching and directed observation in a variety of settings. 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.
Admission to the senior year student teaching seminar is by separate application. This application must be submitted by March 15 of the academic year preceding the one during which the student teaching is to be completed to the Office of Student Services (110) Lindquist Center. Opportunities for overseas and urban student teaching experiences are available. Requirements for admission to student teaching vary by program and academic area. Students should consult with their advisors concerning specific requirements for the seminar program areas.

Waivers

Students who have completed practicum-type experiences or courses that they feel should be considered in lieu of requirements should consult with their advisors concerning waiver procedures.

Urban Student Teaching

Students who feel they may better advance their educational interests through student teaching in an urban setting may apply for this type of experience through the Office of Student Field Experiences. Pre-service settings for urban student teaching include the CETE Program (Cooperating Urban Teacher Education). This option is open to all education majors and can substitute for special education or secondary education. Students must meet the requirements for student teaching.

Overseas Student Teaching

In cooperation with the University of Wisconsin—River Falls, a split student-teaching assignment is available (eight weeks in one of our regular centers and eight weeks in an overseas location). The overseas sites available include: Ireland, England, Scotland, Wales, and Australia. In most locales, students are assisted by the on-site coordinator. Students electing this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in most states, including Iowa, requires a course in American government or American history. The general education (social sciences) course 30:1 Introduction to American Politics satisfies this requirement. All students seeking an Iowa certificate must complete a course in human relations. This responsibility may be met by completing 76:170 Human Relations for the Classroom Teacher.

Special Requirements

Students admitted to TEP for the fall semester 1984 and thereafter must complete 76:170 Introduction to Microcomputer for Teachers or demonstrate basic competency in the use of computers. Students admitted for the fall semester 1984 and thereafter must also demonstrate prior to program completion competency in communication and mathematics skills as prescribed by the given teacher education program area.

Minors

In addition to offering many programs of preparation for teachers, the College of Education offers four minors for students who are simply interested in being better informed about education. Of, a given student may feel that such informatics would be supportive of a future career objective. The four available minors are general education, community education, human relations, and educational psychology. Descriptions of these minors are available in the Office of Student Services.

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 program 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 understanding and performance of the Ph.D. 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 options 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 program. 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-baccalaureate program designed for students 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.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 ten 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 high degree of scholarship and mastery of research skills in course work and are ready in the preparation and defense of a dissertation.

Professional Improvement

Students may be admitted to a professional improvement program for purposes of taking in-service course work rather than a degree program. This program provides for meeting the administrative and professional needs of pre-existing students who demonstrate the desire and willingness to participate in programs designed to help them in their professional growth. These programs are under review by the College of Education for possible accreditation. The goals of these programs, however, are to provide specific information about the various programs, admission procedures and requirements, and rules and regulations.

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 our mission 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, including textbooks, reference books, courses of study, bibliographies, pamphlets, and non-print media such as filmstrips, games, records, and computer 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 production opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition, laboratory staff members provide consultative service to students and faculty of the College of Education for production of color slides, overhead transparencies, and other materials related to instructional development.

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 educational programs. The laboratory also offers workshops and credit courses through the College of Education.

The Educational Placement Office assists students and alumni seeking teaching, administrative, or related positions at all levels and in all fields. Services include individual consultation and group assistance with job search skills and strategies, career development, job search strategies, assistance in interviewing, and opportunities for interview with school recruiters on campus. An information center with resources on 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, DRIC 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 studies 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, validation by evaluation teams and adherence to policies and standards for continued membership. The University of Iowa hires and supports the office of State Director of the Iowa NCA State Committee.

The Office of Research and Development provides supportive services for faculty research, development, and grant activity, and coordinates such efforts with the University Division of Sponsored Programs. It relates and maintains contacts with federal agencies, state agencies, and private foundations for the purpose of identifying potential research opportunities. It disseminates information to college faculty concerning research opportunities and research being conducted.

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University’s Psychiatric Hospital. Children attending this school are residential patients in the child psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services.

University Counseling Services provides research and practicum opportunities for students in counseling psychology.

University Hospital School is a University-affiliated facility and, as such, it strives to provide a viable instructional base of direct services to developmentally disabled young adults, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Financial Aid

Persons interested in employment opportunities in any of the support units and special resources listed above should contact the director of each facility and indicate their interest, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and research assistantships. Scholarships and teaching assistantships are available for graduate students who have applied for admission. For those who are currently undergraduate students, the assistance is for the academic year only, renewable for a limited number of times, and, at the present, provide stipends similar to those for other teaching assistants. Holders are assigned to work under the direction of a faculty member and are expected to be enrolled for at least 9 or more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), letter of recommendation, and scores on the Graduate Record Examination (GRE) or Graduate Management Admissions Test. The application must be filed with a special form that may be obtained from the director of the Iowa Testing Program, 334 Lindquist Center, College of Education. The application deadline is March 15.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University and the community may be obtained from The Office of Student Financial Aid.
College of Education Student Loan Fund

The College of Education Student Loan Fund was established by combining four existing accounts housing Associate Dean Emeritus L.J. Van Dyke; Professors Emeriti John Hafer and John Macdannell; the late Peter Moskovitz, a University of Iowa alumnus; and the late Donald Stawy, a University of Iowa alumnus and former elementary principal in Iowa City. The purpose of the loan fund is to assist College of Education students who are faced with extraordinary expenses while pursuing degree or certification programs, for example, unforeseen medical expenses. The borrower must have completed the equivalent of two semesters of full-time coursework at The University of Iowa, have a strong academic record, and demonstrate potential for success in the field of education. For further information and application forms, contact the Director of College Development, Educational Placement Office, N302 Lindquist Center.

College of Education Awards

Awards are presented to outstanding graduate students in the College of Education at the spring semester faculty meeting of the college. The awards include:

- John Leonard Davis Memorial Award
- An outstanding graduate student majoring in education whose specialization is in educational administration.
- Harry H. Davis Award
- An outstanding student in educational administration who has demonstrated particularity a student interested in the field of educational administration.
- Howard R. Jones Achievement Award
- An outstanding graduate student who has made a significant scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work.
- Perry Eugene McCuskan Award
- The outstanding candidate for an advanced degree in educational administration.
- Leonard A. Miller Memorial Award
- An outstanding third-year M.A. student majoring in rehabilitation counseling.
- Paul C. Packer Award
- The outstanding candidate for the Master's Degree in Education.
- Pi Lambda Theta Award—Senior, M.A. and Ph.D. levels
- To outstanding students of high scholarship, promise in the professional areas of research, teaching or writing, and sterling personal qualities.
- James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology.

Measurement, or Statistics

To an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the thesis phase of study.

Jenell R. Zeber Memorial Award

To an outstanding student preparing to teach the physical handicapped (including the hearing impaired).

Franklin Stone International Student Award

To an outstanding international student pursuing a Ph.D.

Faculty

Ninety-eight percent of the members of the faculty with academic rank held earned doctorates in their teaching fields, and the majority have had teaching or administrative experience in the public schools.

A major strength of the college is its close working relationship with the College of Liberal Arts. With few exceptions, professors in the College of Education also hold academic rank in the College of Liberal Arts. A majority of the professors who teach secondary school methods have doctorates in their teaching disciplines, as well as preparation in education, and hold academic rank both in their academic departments and in education.

Interdivisional Courses

75-000 Cooperative Education Internship

Students participate in a Cooperative Education Internship, spending one work week assignment per week. Regular project-based work is assigned, and peer-mentored, mentored training program to assist in the learning experience. The work week in the semester is determined by the course. May be repeated.

75-170 Human Relations for the Classroom Teacher

3 s.h.

Coursework related to the social and cultural diversity of the classroom. Emphasis is on developing an understanding of the dynamics of individual and group behavior in the classroom setting.

75-188 Workshop: The Arts in Education

3 s.h.

To develop the student's understanding of art as an educational tool. Emphasis will be placed on studio art, art criticism, the arts and society, art history, and art education. Taught by artist educators. Credit 3 s.h. May be repeated.

75-199 Guidelines of Alternative Learning

3 s.h.

Examine current standards in alternative learning; the educational and other human services specifically, to assess the compatibility of these trends with projected public needs.

Counselor Education

Chair: Nicholas Colegiani
Co-Chairs: Nicholas Colegiani, E. Richard Duskin, Harold H. Eggers, Albert B. Hoover, David A. Breslau

Professor emeritus: C. Hakim Deneen
Asst. Chair: E. Richard Duskin
Co-Chair, Counselor Education Program: C. Hakim Deneen

Graduate Assistant: David A. Breslau

Admissions:

75-000 Counseling Internship

Students participate in a Counseling Internship, spending one work week assignment per week. Regular project-based work is assigned, and peer-mentored, mentored training program to assist in the learning experience. The work week in the semester is determined by the course. May be repeated.

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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 either the M.A., Ed.S., or Ph.D., as well as 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) GRE score of 1000 or better.

E.g.s. Candidates
A graduate grade-point average of 3.25 or better and a Composite (verbal and quantitative) GRE 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) GRE 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 course work is to 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. Typically, a score of 550 is required. Depending on the TOEFL score, the division may require students to take and pass course work 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 counseling degree.

Any special 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 12 semester hours of core courses (approved by advisor) over two consecutive sessions 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 sessions 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, N318 Lindquist Center, University of Iowa, Iowa City, IA 52242. Phone: (319) 335-3370. In order to check on whether an application dossier is complete contact Office of Student Services, N310 Lindquist Center, University of Iowa, Iowa City, IA 52242, (319) 335-0546.

Admission applications will be acted upon immediately after each deadline and applicants will be notified in writing. Applicants who are accepted must reply within 30 days 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:


Successful completion of practicum, internship, or equivalent professional experience;

Maintain professional behavior consistent with the AACI 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.

Probational Status
Any M.S. 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 will have two consecutive semesters to raise the grade-point average. If the probation 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 student dean 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 union, career planning and placement, residence halls, foreign student services, community college counseling service, 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 union, 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 Counselor 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 at the division level. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Courses

TC 591 Making a Vocational-Educational Career

2.0 h

Describes trends among students who are entering into direct rehabilitation and vocational roles. Emphasizes the development of the self-concept, self-assessment, and self-evaluation of the work of the world.

TC 598 Student Development for Residence Hall Staff

2.0 h

Prepares residence life assistants with appropriate concepts, background and practical skills for performing their responsibilities. Content includes career development theory, helping skills, group leadership, and program development.

TC 586 Introduction to Peer Counseling

3.0 h

Introduction and exploration of helping and counseling techniques (listening, empathy, etc.) for persons interested in or involved in helping relationships with people in a peer-oriented setting.

TC 180 Career Guidance and Job Placement

3.0 h

Course prepares counselors and teachers to help people make sense of, decide upon, and enter work roles. Content includes career development concepts and theories, work environments, guidance goals and objectives, exemplary methods and materials, and effective procedures.

TC 182 Process of Change and the Counselor 3.0 h

Laboratory course focusing upon stages other than change-related relationships and helping processes in human service. Prerequisite: consent of instructor.

TC 222 Human Sexuality

3.0 h

Exploration of psychological and sociological aspects of human sexuality. Same as 42112, 53117, 92112.

TC 2103 Introduction to the Culturally Different 3.0 h

Promotes cultural sensitivity different cultural students in schools and social service settings. Relevant research on impact of cross-cultural background on learning provides examples. Same as 21101.

TC 127 Effective Eating of the Gilded 3.0 h

Same as 52117.

TC 149 Basic Stress Management and Relaxation Education 3.0 h

Considers the role of the education plan in socialization of the social and cultural rehabilitation process in terms of stress management and relaxation. Alternative educational approaches are described for change. Same as 51140.

TC 153 Psychological Aspects of Women's 3.0 h

Introduction to the psychological aspects of women's and men's roles in developing and socialization in a variety of settings, strategies for change.

TC 145 Introduction to Marriage and Family Counseling and Psychotherapy 3.0 h

Basic principles and concepts of the family. Therapy movements and issues related to social function of societal family structures. After part of course covers application modern family therapy and specific techniques.

TC 705 Multicultural Counseling 3.0 h

Basic skills of hearing, questioning, paraphrasing and reflecting feelings: video, using citizen language.

TC 196 Workshop in Counseling Education 3.0 h

Desired to provide topics for the continuing education of counselors in current and pertinent programs.

TC 195 Introduction to Substance Abuse 3.0 h

Consideration of attitudes, values, language, abuse and ethical information on psychosocial change; current substance abuse issues including family, recreation prevention, and treatment.

TC 150 Group Processes for Related Professions 3.0 h

Basic group techniques used for personal and organizational development in educational settings. Dynamics and techniques for the development of groups and teams include such topics as group process, group norms, and communication.

TC 205 Individual Instructive in Counseling Education 3.0 h

Prerequisite: consent of instructor.

TC 705 Professional Ethics for Related Professions 3.0 h

Introduction to counseling theory and principles for personal and organizational development in educational settings. Dynamics and techniques for the development of groups and teams include such topics as group process, group norms, and communication.

TC 754 Survey of Research, theory, and practice in groups counseling and leadership. Focuses on the development and evaluation of various leadership styles. Open only to members of the counseling staff.

TC 792 Pre-Professional in Counseling 3.0 h

Prepares candidates for the field of counseling psychology to advance into a professional program. Includes introductory course on research methods and statistics. Same as 42907, 52907.

TC 755 Comprehensive Supervision of Counseling 3.0 h

Prerequisite: consent of instructor. Focuses on the field of counseling psychology to advance into a professional program. Includes introductory course on research methods and statistics. Same as 42907, 52907.

TC 756 Introduction to Counseling Ethics 3.0 h

Prerequisite: consent of instructor. Focuses on the field of counseling psychology to advance into a professional program. Includes introductory course on research methods and statistics. Same as 42907, 52907.

TC 757 Introduction to Counseling Research 3.0 h

Prerequisite: consent of instructor. Focuses on the field of counseling psychology to advance into a professional program. Includes introductory course on research methods and statistics. Same as 42907, 52907.
Undergraduate Programs

Students pursuing a major to elementary education or in early childhood education may elect to meet requirements for either the B.A. or B.S. degrees. The B.A. degree requires four semesters of study or the equivalent in one foreign language. All other requirements the B.A. and B.S. degree requirements are identical. Required by the elementary program only is:

22840 Theory of Arithmetic 3 s.h.

Required by both programs are the following foundations courses, which should be completed by the sophomore year:

70725 Educational Psychology and Measurement 3 s.h.

71100 Introduction: Elementary and Early Childhood Teaching 3 s.h.

79319 Audio-Visual Equipment for Instruction 1 s.h.

79320 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:

75170 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 third grade. Preparation for early childhood teaching includes the study of child development, parent-child relationships, and the organization and administration of child care centers, in addition to appropriate curriculum and methodology for young children. The program requires a minimum of four practicum 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 Endorsements 52, 55, and 57 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 early childhood education major as described in a subsequent section of the Catalog and its early childhood education specialization area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 10 (K-5) and 51. Students interested in dual certification as teachers of pre-kindergartens 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 Director 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:

17110 Growth and Development of the Young Child 3 s.h.

17106 Child Development 3 s.h.

17124 Nutrition Work with Children 3 s.h.

(Same as 7E102)

7E120 Methods and Materials: Music for the Classroom Teacher 3 s.h.

7E122 Methods and Materials: Art for the Classroom Teacher 3 s.h.

7E123 Literature for Children I 3 s.h.

7E137 Methods: Early Childhood Education I 3 s.h.

7E192 Pre-Education Practicum, Pre-Kindergarten 1 s.h.

(Contract: 7E157)

7E167 Methods: Early Childhood Education II 3 s.h.

7E208 Pre-Education Practicum, Kindergarten and Early Elementary 3 s.h.

(Contract: 7E157)

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow:

17114 Parent-Child Relationships 3 s.h.

75183 The Culturally Different in Educational Settings 3 s.h.

or

7E155 Methods: Multicultural, Bilingual Education 3 s.h.

or

7E156 Multicultural Concepts and Educational Systems 3 s.h.

7E190 Development and Administration of Child Care Centers 3 s.h.

Students must also take a minimum of three courses (3 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 Office of Early Childhood and Kindergarten Education office. These courses may be taken pass/no credit 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 specialities 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 and the selection and use of curricular materials suitable for school age children. One of the methodological procedures most appropriate for preparing these materials is the program's study. 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 combination should make appropriate application to each program and these applications will be considered independently.

The foundations courses listed earlier in this section are required. All others must be taken concurrently with 7E1100 Introduction: Elementary and Early Childhood Teaching, in the following:

7E191 Pre-Education Practicum, Elementary Education 3 s.h.

(To meet the foundations requirements, graduate students may elect equivalent graduate courses with the approval of their advisor.)

The student must complete the following elementary methods courses to be eligible for student teaching:

7E140 Methods: Elementary School Language Arts 3 s.h.

7E153 Methods: Elementary School Social Studies 3 s.h.

7E142 Methods: Elementary School Science 2 s.h.

7E153 Methods: Elementary School Mathematics 2 s.h.

7E144 Methods: Elementary School Reading 3 s.h.

An area of specialization is required in a teaching field. The area of specialization offered is elementary art, the arts in early childhood and elementary 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 advisor to arrange a program of preparation for teaching in a subject area and to meet the specific requirements for that area. Copies of the requirements for each area of specialization or education in the Division of Early Childhood and Elementary Education office. Courses in the area of specialization may be taken pass-fail if they are offered with the pass-fail option.

Required is a minimum of 15 semester hours of credit in 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 advisors 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 education 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 of young children. The program is designed to provide the student with practical experience 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 Centers 3 s.h.
TE 264 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 266 Curriculum Development in Pre-Kindergarten 3 s.h.
TE 230 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 (with thesis) are electives mutually chosen by the student and the academic advisor.

Elementary Education

The degree program, which may be taken with thesis (36 semester hours minimum) or without (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to serve 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 12. 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 complete the following courses in each area:

- Reading: Reading, Language, and Literature 3 s.h.
- Mathematics: Mathematics 3 s.h.
- Science: Science 3 s.h.
- Social Studies: Social Studies 3 s.h.
- Life Skills: Life Skills 3 s.h.
- Physical Education: Physical Education 3 s.h.

In addition, candidates must complete one or more courses in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor's approval.

Master of Science

Elementary Science

The degree program is designed to prepare master's degree candidates in elementary science to serve as team departmental science specialists. The program may be taken with thesis (36 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 2-3 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 252 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 advisor.

Doctor of Philosophy

Elementary Education

The purpose of this program is to prepare individuals for college and university teaching and research positions in elementary education, or 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 of credit for the dissertation. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the division head.

As a general guideline, each student is expected to have a good general background in all facets of elementary school administration and a very strong area of specialization in at least one area. Currently selected specialization areas are elementary school administration, children’s literature, early childhood, curriculum and language arts, mathematics, reading, and social studies.

Each doctoral student must also complete a cognate or mentored field of concentration. The external field may be a professional specialization, such as an educational psychology and measurement, special education, or general school administration; or it may be a subject field, such as English.
### Educational Administration

**Chair:** Walter J. Finley  
Professor: George A. Chambers, Walter J. Finley, Jerry W. Gates, Bradley M. Lawrence  
Professors emeriti: William R. lane, John E. McKean  
Associate professors: Diane D. Anders,  
Assistant professors: Carol A. Barrett, Larry D. Bartlett  
Adjunct assistant professor: John R. Cox  
Adjunct professor: Welford C. Donaldson  
Degree offered: M.A., E.D., Ph.D.  

The Division of Educational Administration focuses on preparing individuals for leadership positions and other courses leading to the M.A., E.D., Ph.D. degrees, and administrative certification. The primary purpose of the M.A. program is to prepare individuals for appointments 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 administrations in upgrading 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 Education 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, one must be certified by the state of Iowa as an elementary principal, secondary principal, or superintendent, and an individual must hold or be eligible to hold a professional teaching certificate. Having 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 these requirements: Elementary Principal (Endorsement 11) and Secondary Principal (Endorsement 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 or the appropriate certification level, and courses from the elective list approved by the advisor 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 program approved at The University of Iowa. Administrative certification at a level different from that characterizing prior student preparation and experience should be planned with an advisor. Superintendent (Endorsement 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, and for positions within area education agencies and state departments of education. The student may take the program with thesis (30 semester hours minimum) or
Thesis  A student electing the M.A. program with thesis must take TE280 M.A. Thesis in Educational Administration and a final oral examination on the thesis.

Comprehensive Examinations  The student shall pass two three-hour examinations in areas of emphasis selected with the approval of his or her adviser. A student must be registered in the Graduate college at the time of the comprehensive examinations.

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 at principal, superintendent, and other administrative and supervisory positions in educational agencies. A student wanting certification plans a program approved by an adviser to meet State of Iowa certification requirements.

Course Requirements  TE281 Administration of Educational Program and Personnel 4 s.h.
TE294 Policies and Economics of the Governance and Financing of Public Education 4 s.h.
TE297 Administrative Leadership Theory 4 s.h.
TE299 Legal Aspects of School Administration 2-3 s.h.
TE395 Educational Specialist Research in Educational Administration 2-3 s.h.

Program Emphasis  Students must complete the balance of the minimum required semester hours (minors, cognates, 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  TE281 Introduction to Educational Administration 3 s.h.
TE292 School Organization Patterns 3 s.h.
TE293 Curriculum Development in the Elementary School 3 s.h.
TE293 Seminar: Supervision and Administration 2-3 s.h.
TE293 Analysis and Approval of Curriculum 2-3 s.h.
TE299 Supervision of Elementary Schools (language arts) 3 s.h.
TE291 Supervision of Elementary School Social Studies 3 s.h.
TE299 Supervision of Elementary Schools (mathematics) 3 s.h.
TE299 Supervision of Intermediate Grade Reading 3 s.h.
TE299 Curriculum Development in the Pre-Kindergarten 3 s.h.

Secondary Level  TE281 Introduction to Statistical Methods 3 s.h.
TE297 Managing the School Organization 1 s.h.
TE297 Legal Aspects of School Administration 2-3 s.h.
TE299 Seminar: Supervision and Administration 2-3 s.h.

Central Staff Administration  Required  TE281 Introduction to Statistical Methods 3 s.h.
TE292 School Organization Patterns 3 s.h.
TE299 Seminar: Supervision and Administration 2-3 s.h.

Middle School/Junior High Level  Required  TE280 Contemporary Management Strategies for the Middle School Principal 3 s.h.
TE299 Field Service Project in Educational Administration (middle school/junior high) arr.

Elementary Level  Required  TE280 Contemporary Management Strategies for the Elementary Principal 3 s.h.
TE299 Field Service Project in Educational Administration (elementary) arr.

Electives  TE117 Philosophies of Education 2, 3, 5 s.h.
TE170 Educational Psychology 3 s.h.
TE170 Introduction to Statistical Methods 3 s.h.
TE292 Managing the School Organization 1 s.h.
TE297 Legal Aspects of School Administration 2-3 s.h.
TE299 Seminar: Supervision and Administration 2-3 s.h.

To be selected with the approval of the adviser.

Middle School/Junior High Level  Required  TE280 Contemporary Management Strategies for the Middle School Principal 3 s.h.
TE299 Field Service Project in Educational Administration (middle school/junior high) arr.

Elementary Level  Required  TE280 Contemporary Management Strategies for the Elementary Principal 3 s.h.
TE299 Field Service Project in Educational Administration (elementary) arr.

Electives  TE117 Philosophies of Education 2, 3, 5 s.h.
TE170 Educational Psychology 3 s.h.
TE170 Introduction to Statistical Methods 3 s.h.
TE292 Managing the School Organization 1 s.h.
TE297 Legal Aspects of School Administration 2-3 s.h.
TE299 Seminar: Supervision and Administration 2-3 s.h.

To be selected with the approval of the adviser.

Middle School/Junior High Level  Required  TE280 Contemporary Management Strategies for the Middle School Principal 3 s.h.
TE299 Field Service Project in Educational Administration (middle school/junior high) arr.

Elementary Level  Required  TE280 Contemporary Management Strategies for the Elementary Principal 3 s.h.
TE299 Field Service Project in Educational Administration (elementary) arr.

Electives  TE117 Philosophies of Education 2, 3, 5 s.h.
TE170 Educational Psychology 3 s.h.
TE170 Introduction to Statistical Methods 3 s.h.
TE292 Managing the School Organization 1 s.h.
TE297 Legal Aspects of School Administration 2-3 s.h.

To be selected with the approval of the adviser.
TG 304 Seminar: Supervision and Administration 3.0 s.h.
TG 279 Issues and Ethics in Counseling 3.0 s.h.
TP 156 Introduction to Educational Measurement 3.0 s.h.
Secondary School Administration TP 156 Introduction to Educational Measurement 3.0 s.h.
TG 279 Issues and Ethics in Counseling 3.0 s.h.
General School Administration TG 285 Collective Bargaining in Education 3.0 s.h.
TG 292 Planning and Utilization of Educational Facilities 3.0 s.h.
TG 295 Financial Management of Local School Systems 3.0 s.h.
TG 275 Educational Administration Practice 3.0 s.h.
TP 143 Introduction to Statistical Methods 3.0 s.h.

Cognates
The student must complete a minimum of 6 semester hours carrying a cognate relationship to educational administration, subject to the advisor's approval.

Electives
The student chooses electives completing the 42-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 personnel, business affairs, instruction, finance, 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 three-hour examination in a specialized area other in educational administration or in a related or cognate field. Students must be registered in the Graduate College at the time of the comprehensive examination.

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 at least one aspect of educational administration upon completion of the program.

Commonly selected specialization areas are: general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, legal aspects, theory, and school personnel. Students specializing in administration must complete a 6-semester-hour cognate 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 to at least one aspect of educational administration, cognate study, research competencies, and dissertation research.

Core Courses
Core courses are designed to develop competencies in the functional areas of school administration and to provide the necessary background for further study including research in specialized areas. The four core courses relate to education 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 all-day comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student's area of specialization that is approved by the student's advisor and the division chair. Students must have completed the doctoral core courses and/or be enrolled to complete the comprehensive examination for the Graduate College. 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.

Candidates pursuing doctoral programs in areas other than educational administration who wish to use some aspect of the educational administration program as an area of concentration for which they would request a comprehensive examination should consult with an advisor in the Division of Educational Administration early in their authority of study.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students provided they meet the necessary prerequisites for specific courses. The student should consult approximately 12 semester hours is one area of 50-75% before requiring a comprehensive examination. If the student decides to use a field within educational administration as a retested comprehensive area, the student should be close to complete all 18 semester hours of the diversity and coursework work in educational administration.

Research
Dissertation Prospects
The student must write a formal dissertation prospectus and submit it to a 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 dissertation committee. Dissertation prospectus meetings will be held during summer session.

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.

Admission
Applicants must satisfy Graduate College requirements. Candidates are selected through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses
TG 301 Foundations of School Administration 3.0 s.h.
TG 302 Staff Development 3.0 s.h.
TG 303 Contemporary Applications in Education 3.0 s.h.
TG 304 Educational Systems Analysis and Operations Research 3.0 s.h.
TG 305 Educational Leadership and Administration 3.0 s.h.
TG 306 Collective Bargaining in Education 3.0 s.h.
TG 307 Professional Standards of Conduct 3.0 s.h.
TG 308 Educational Technology 3.0 s.h.
TG 309 Curriculum Development for Exceptional Students 3.0 s.h.
TG 310 Supervision and Administration of Secondary Schools 3.0 s.h.
Foundations, Postsecondary and Continuing Education

Chair: William E. Duffy

Assistant professors: David B. Stiles, Charles M. Morey, Beverly L. Bartlett

Associate professor: Robert R. Britting

Adjunct assistant professor: Steve Arcuri

Adjunct associate professor: Jerald W. DeJarnette, Linda Arora, Mecha Masi

Assistant instructor: Joyce A. Kniehl

Ph.D. Higher Education: B.S., B.A., M.A. E.S., Ph.D.

The programs in the division are designed to prepare administrators and professionals in teaching and researchers in the fields of social foundations and postsecondary and continuing education. The academic programs in the division reflect this diversity of purpose.

Social Foundations of Education

Social Foundations of Education is an interdisciplinary program within the College of Education designed to enable students to better understand the influence of social, historical, and philosophical forces upon the formal educational enterprises. Major areas of specialization within the program are: comparative international education, history of education, philosophy of education, and sociology of education.

General requirements for admission are: the Graduate College. A personal interview with one or more members of the Social Foundations faculty is desirable and may be required. An undergraduate and/or graduate emphasis in philosophy, the humanities, or the social sciences and two years of teaching experience are strongly recommended. Students must maintain a 3.0 overall grade-point average to remain in the program.

Master of Arts

Students in the M.A. program must take a minimum of 18 semester hours of work in social foundations, which should include at least two courses in each of the five offered areas of specialization. The remainder of their required 32 semester hours of course work will be in an area of concentration appropriate to their career and academic goals. For example, a student interested in philosophy of education would normally take these courses in the Department of Philosophy.

Doctor of Philosophy

The Ph.D. program requires a minimum of 50 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 must take at least 12 semester hours in related courses in the College of Education, none of which must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, and post-secondary and continuing education.

Applicants must hold a baccalaureate degree from a regionally accredited institution. Applicants must hold a baccalaureate degree from a regionally accredited institution. Applicants must hold a master's degree from a regionally accredited institution.

Two research tools are required and are selected from the following: alternative research methods, or a seminar in research methods, or a seminar in qualitative research methods, or a seminar in quantitative research methods, or a seminar in research methods, or a seminar in qualitative research methods.

In addition, all students are required to successfully complete TF 4019 Seminar in Research Methods or TF 4020 Research in Higher Education. Dissertation research in social sciences 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 network 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 degrees at all levels is available. The teaching, research, and service activities of the faculty, and the work of the graduate students in the degree programs, illustrate that education beyond the high school level contributes 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 skills and General Education Requirements of the College of Liberal Arts, students complete courses in professional education and in 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 registered nurse. The health occupations education major is planned upon this base, and provides work in professional education and the liberal studies curriculum to teachers who wish to acquire a baccalaureate degree.
Applications to this program must satisfy criteria for admission to the Teacher Education Program (TEP) of the College of Education.

Program requirements:

Professional Education Component

7P35 Educational Psychology and Measurement 3 s.h.
7W31 Audiovisual Equipment for Instruction 1 s.h.
7W32 Introduction to Microcomputing for Teachers 1 s.h.
7H112 Teaching English 3 s.h.
7H117 Foundations of Vocational Education 2 s.h.
7H150 Seminar: Health Occupations Education 1-4 s.h.
7H191 Community College Teaching Internship 12 s.h.
7H191 Observation and Laboratory Practice in the Secondary School 12 s.h.
7H192 Curriculum Development Application in Community College and Health Careers 3 s.h.
Appropriate course in social foundations 2-3 s.h.
Additional specialty course work 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 in education in keeping with their educational goals. In addition, students must meet certification requirements stipulated by 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-level administrative, curriculum and instruction, or continuing education positions in two- and four-year institutions, and is appropriate for positions such as assistant dean, business manager, development officer, assistant to the president, director, or 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 Exam (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, the GRE scores, and three letters of recommendation are required for consideration for regular admission. An interview is recommended.

Requirements

The M.A. program requires a minimum of 32 semester hours,

Two three-hour examinations, one in higher education and one including the student’s area of concentration and specialization,

Areas of concentration in which examinations may be written: administration, curriculum and instruction, continuing education. Areas of concentration for related field examinations: administration, curriculum and instruction, continuing education. Minimal requirements for eligibility to write a related field examination: students majoring in another field who want to complete a related field in higher education should consult with a higher education adviser early in their studies. Plans of study will be developed individually.

Education Specialist

The Ed.S. program provides advanced graduate education in higher education in the areas of administration, curriculum and instruction, community college administration, and continuing education for students not currently planning to continue for the doctorate. The specialist degree may also be awarded upon completion of a joint program in higher education and an academic field comprising a minimum of 40 semester hours of graduate work or upon completion of a higher education sequence following a master’s degree program.

Admission

Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for regular admission. An interview is recommended.

Major in Higher Education

Requirements for the Ed.S. major in higher education are:

At least 18 semester hours in professional education and related fields including a structured internship determined in consultation with the advisor to be appropriate for one of the following four areas: administration, curriculum and instruction, community college administration, and continuing education.

At least 28 semester hours in the area of specialization to be determined in consultation with the advisor.

10 semester hours of electives to be approved by the advisor.

Research conducted under registration in 7H1395 Educational Specialist Research in Higher Education for 4 semester hours.

Two three-hour comprehensive examinations:

An examination to cover the field of higher education is given.

An examination in one of the four concentrations within higher education, possibly 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 31 semester hours in professional education and related fields appropriate for college teaching including a structured internship.

7H120 Intern Seminar 1-3 s.h.
7H139 College Teaching Internship 1-3 s.h.
7H132 Post-High School Staff Development Workshop 1-2 s.h.
7W31 Audiovisual Equipment for Instruction 1 s.h.
7P131 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 one candidate’s advisor.

Research conducted under registration in 7H1395 Educational Specialist Research in Higher Education for 4 semester hours.

Comprehensive Examination:

An examination of the nature of postsecondary institutions and student communication, 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 want to complete a related field in higher education should consult with the higher education adviser early 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, with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the host community.
Psychological and Quantitative Foundations

Graduate Programs

Master of Arts

Educational Psychology

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 that 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" requirements in the Catalog). TP-25 Elementary Statistics and Inferential must be used to satisfy this requirement.

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 post-secondary education. The remaining electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer science, educational technology, mathematics, and counseling.

The final comprehensive examinations types include the usual tests in educational measurement and in applied statistics. The student may take two-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's score on the quantitative, verbal, or analytical section of the Graduate Record Exam (GRE) General Test is less than 500, the applicant will not be admitted. However, if the applicant's performance on a test of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least two years of college mathematics. Some work experience as a teacher or researcher is highly desirable. 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 laboratories, and business 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 post-secondary education. The remaining electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer science, educational technology, mathematics, and counseling.

The final comprehensive examinations types include the usual tests in educational measurement and in applied statistics. The student may take two-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's score on the quantitative, verbal, or analytical section of the Graduate Record Exam (GRE) General Test is less than 500, the applicant will not be admitted. However, if the applicant's performance on a test of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least two years of 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:

- TP:170 Introduction to Psychology of Reading 3 s.h.
- TP:173 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 4 s.h.
- TP:350 Introduction to Educational Measurement 3 s.h.
- T326 Individual Intelligence Testing 3-4 s.h.

Students must also complete at least 4 semester hours of practicum courses chosen with the advisor's approval from the following:

- TE:171 Reading Clinic Teaching Techniques 2-3 s.h.
- TE:172 Reading Clinic Teaching Practicum 2-3 s.h.
- TE:271 Advanced Reading Clinic Techniques 2-3 s.h.
- TE:272 Advanced Reading Clinic Practicum 2-3 s.h.
- TE:365 Reading Clinic Supervision arr. 
- R3270 Teaching in a 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 educational 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:

- TP:143 Introduction to Statistical Methods 3 s.h.
- TP:143 Intermediate Statistical Methods 4 s.h.
- TP:270 Advanced Psychology of Reading 3 s.h.
- TP:273 Reading Clinic Diagnostic Practicum 2-3 s.h.
- TP:100 Introduction to Logistics 3 s.h.
- TP:383 M.A. Thesis in Educational Psychology, Measurement, or Statistics 2-4 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 satisfying 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 thesis.

Regular admission requires a minimum grade-point average of 3.0 on 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 fall and spring 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:

- 7W:103 Selection and Use of Media for Instruction
- 7W:105 Design and Production of Media for Instruction
- 7P:107 Psychological Bases of Instructional Design
- 7W:120 Introduction to Instructional Design and Technology
- 7P:150 Introduction to Educational Measurement
- 7W:220 Advanced Instructional Design and Technology
- 7W:222 Instructional Strategies

If the degree is done with thesis the student is also required to take TP:143 Introduction to Statistical Methods or TP:261 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:

- Computer applications
- Health sciences education
- Instructional development

Media center administration

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 chairman 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:
- TP:143 Introduction to Statistical Methods
- 7W:261 Research Methods in Instructional Design and Technology
- 7W:269 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
Doctor of Philosophy

Educational Psychology

This doctoral program prepares graduates for a variety of careers that share a common interest in the application of psychological principles to educational practices. Such careers include: professors at the university and college level, research in educational psychology, directors of testing programs, counselors in educational psychology, and in many capacities in the area of special education. Applicants must hold an M.A. degree in instructional psychology or a related field, or an M.S. degree in some form of psychology. A minimum of thirty graduate hours is required, including a full semester of graduate work in educational psychology. Further, 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 on no less than six semester hours at the 600 level. Additional requirements include the following:

- 30 semester hours at the 600 level, including a minimum of 15 semester hours in educational psychology.
- 10 semester hours of a Ph.D. thesis or comprehensive examination.

Graduate programs in educational psychology require the successful completion of the comprehensive examination. This examination should provide a broad knowledge of the field and also demonstrate the ability to reason effectively. The examination is not a test of memory but rather a test of understanding and application of psychological principles. The examination is oral and written, and consists of five parts. Each part is designed to test the candidate's knowledge of a specific area of educational psychology. The total number of hours required is 15. The examination is administered by a committee of three faculty members, with the chairman of the committee serving as the moderator. The examination is administered in a manner that is consistent with the standards of the American Psychological Association. The examination is administered by a committee of three faculty members, with the chairman of the committee serving as the moderator. The examination is administered in a manner that is consistent with the standards of the American Psychological Association. The examination is administered in a manner that is consistent with the standards of the American Psychological Association.
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 completion of approximately 18 semester hours of core course work. The division faculty will consider course grades, evidence of critical and analytical skills, development since admission to the program, and progress for continued enrollment. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of the three-hour written examinations over the fields of applied statistics, educational measurement, and educational psychology or an approved substitute area. A comprehensive examination will generally be one in which the candidate has at least 9 semester hours of course work in it. In lieu of one written examination, the student’s committee may assign a project involving analytical, evaluative, or research creativity. The written examinations are followed by an 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 in all aspects of the comprehensive examinations.

Applicants for admission to the program must hold a bachelor’s degree from an accredited institution. 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 required to provide evidence of the applicant’s abilities that would indicate a candidate who expects to concentrate in the area of statistics would be following 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 15 credits of professional experience in teaching, research, or a related field is highly desirable. The faculty reserves the right to accept 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 reading programs, and as experienced instructors 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 interest and relevant courses offered by the divisions of special education, 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 90-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 learning and instruction and 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 also recommended that applications 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:

1. M.A. core without statistics, plus:

2. 78:910 Introduction to Statistical Methods

3. 78:324 Selected Applications of Statistical Methods

4. 78:201 Research Methods in Instructional Design and Technology

Six semester hours of research related course work.

In addition, the program requires completion of 18 semester hours of prescribed course work in one of the following areas:

Computer applications
Health and career 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 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 in a format compiled by three members of the faculty in the instructional design and technology program. All students must successfully pass a nine-hour test on major comprehensive examinations. These examinations are divided into three, four, four-hour segments distributed as follows:

General instructional design 3-6 hours
Area of specialization 3-4 hours
Others 0-3 hours

Financial Aid

The division normally employs a number of graduate students as teaching, research, and production assistants. There are typically half-time academic year appointments, and fellowships are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair 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 scoring 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 educational psychology, but opportunities should be directed to the program director.

Courses

Educational Psychology, Measurement, and Statistics

78:125 Elementary Statistics and Biometrics

6-3-3-0

Prerequisite: Math 158 or social and biological sciences, or special permission. Sampling distribution models, sampling and statistical inference, estimation, hypothesis testing, correlation and regression, analysis of variance, and linear algebra.

78:195 Child Development

6-3-3-0

Prerequisite: Math 158 or social and biological sciences, or special permission.

78:197 Psychological Basis of Instructional Design

3-3-3-0

Prerequisite: Math 158 or social and biological sciences, or special permission.

78:198 Sociological Foundations of the School Age Child

3-3-3-0

Prerequisite: Math 158 or social and biological sciences, or special permission. Examination of the social and cultural contexts of human development with particular emphasis on those which are most relevant for school-aged children.

78:111 Introduction to Human Development

3-3-3-0

Prerequisite: Math 158 or social and biological sciences, or special permission. Description of practical implications of research findings on the development of individuals and their relationships between education, learning, and performance.
78-03 Cognitive Processes in Classroom Learning 3.0 h.
- Theories of cognitive development: concept formation, problem solving, skills, and strategies of thinking. Application of cognitive theory to classroom teaching.

78-04 Cognitive Science in Children 3.0 h.
- Piaget's theory of cognitive development and its stage analysis. Recent criticism of Piaget's theory. Examination of some current cognitive models of children's thinking.

78-05 Advanced Theories of Motivation 3.0 h.
- Analysis of the historical and structural aspects of theories of human motivation: drive concepts, self-concepts, self-conceptions, personality theory, and the role of human motivation in the achievement of goals.

78-06 Advanced Theories of Learning 3.0 h.
- Focus on the historical and structural aspects of theories of human learning: socialization, learning, personality development, and motivation. Emphasis on the role of human learning in the achievement of goals.

78-07 Advanced Seminar in Educational Research Methods 3.0 h.
- Advanced study of educational research methods. Emphasis on the design, implementation, and analysis of educational research studies.

78-08 Advanced topics in Psychological and Quantitative Studies 3.0 h.
- Advanced topics in psychological and quantitative studies. Emphasis on the design, implementation, and analysis of psychological and quantitative research studies.

78-09 Psychological Development: Theories of Personality 3.0 h.
- Survey of major perspectives on personality development from infancy to adulthood. Emphasis on the role of personality development in the achievement of goals.

78-10 Developmental Theories and Child Development 3.0 h.
- Survey of major perspectives on developmental theories and child development. Emphasis on the role of developmental theories and child development in the achievement of goals.

78-11 Advanced Seminar in Educational Psychology 3.0 h.
- Advanced study of educational psychology. Emphasis on the design, implementation, and analysis of educational psychology studies.

78-12 Advanced Seminar in Socio-cultural Issues in Psychological and Educational Research 3.0 h.
- Advanced study of socio-cultural issues in psychological and educational research. Emphasis on the role of socio-cultural issues in the achievement of goals.

78-13 Advanced Seminar in Instructional Psychology 3.0 h.
- Advanced study of instructional psychology. Emphasis on the design, implementation, and analysis of instructional psychology studies.

78-14 Advanced Seminar in Instructional Technology 3.0 h.
- Advanced study of instructional technology. Emphasis on the design, implementation, and analysis of instructional technology studies.

78-15 Advanced Seminar in Instructional Design and Technology 3.0 h.
- Advanced study of instructional design and technology. Emphasis on the design, implementation, and analysis of instructional design and technology studies.

78-16 Advanced Seminar in Instructional Design and Technology 3.0 h.
- Advanced study of instructional design and technology. Emphasis on the design, implementation, and analysis of instructional design and technology studies.
300 EDUCATION/Psychological and Quantitative Foundations

and implementation, technology, documentation, utilization, and interpretability. Prerequisite: Psych 215.

TW 220 Advanced Instructional Design and Technology 3 s.h.
Advanced study of the instructional design process with heavy emphasis on current theoretical designs. Prerequisite: TW 210 and TW 213.

TW 223 Instructional Strategies 3 s.h.
Review of the literature on instructional strategies, including large and small group activities. TW 214 with emphasis on issues related to design strategies, and evaluation. Prerequisite: TW 210 and TW 213.

TW 225 Computer-Based Instructional Strategies 3 s.h.
Design and development of computer-based instructional programs for delivery of instruction, diagnosis, tutorial, and remediation. Prerequisite: TW 210 and TW 213.

TW 226 Advanced Topic in Computer Science 1-6 s.h.
Advanced study of selected and current subject matter in computer science. Prerequisite: TW 210 or consent of instructor.

TW 228 Graphics Concepts 3 s.h.
Theory and principles for preparing educational and instructional graphics, printing out on graphic, and materials, message design, layout, lettering, graphic matching, simple drafting, etc. Prerequisite: TW 210 and TW 213, plus one course in instructional design.

TW 230 Advanced Computer Graphics 3 s.h.
Involves such techniques as color and tone, hiding line removal, animating, programming utility of software. Prerequisite: TW 210 or consent of instructor.

TW 240 Administration of Educational Media 3 s.h.
Principles of organization and personnel management as they apply to the media programs. Prerequisite: TW 210 and TW 213 or equivalent.

TW 241 Leadership and Management in Health-related Education 3 s.h.
Examination of the organization and group dynamics important to the management and planning of health-related programs in the health sciences; emphasis on technical and personal aspects of 3 s.h.

TW 261 Research Methods in Instructional Design and Technology 3 s.h.
Research practice, experimental design considerations, and writing the experimental design. Prerequisite: PSY 210 or equivalent. TW 210, TW 213, and consent of instructor.

TW 272 Sustaining Learning in Health Sciences 3 s.h.
A survey of educational and clinical teaching models for the health sciences and a study of issues involved in the development of a comprehensive model for health sciences. Same as HSC 252.

TW 273 Consultation Theory and Practice 3 s.h.
Preparation of instructional materials, consultation and related materials in the communication of instructional materials, and theory. Prerequisite: TW 210, same as TESOL 273.

TW 278 Survey of Research in Instructional Design and Technology 3 s.h.
Survey of research in the instructional sciences, communications technology, and message design as related to technology.

TW 286 Special Topics in Health Sciences Education 1-3 s.h.
Study of special topics of concern to individuals in health science education.

TW 300 Independent Study Instructional Design for Special Needs 1-3 s.h.
Opportunity to investigate areas of specific concern to the student. Prerequisite: consent of instructor.

TW 320 Practices in Instructional Design and Technology 3 s.h.
Supervised experience in applied writing.

TW 325 Internship in Instructional Design and Technology 3 s.h.
Supervised administrative and other non-teaching experience in public schools, social agencies, higher education, or industry. Prerequisite: consent of instructor.

TW 326 Internship Seminar in Instructional Design and Technology 3 s.h.
Discussion of current issues and trends. May be repeated.

TW 350 Advanced Text in Instructional Design and Technology 3 s.h.
Text on selected research, learning, thinking, and communication from applied and multidisciplinary perspectives: utilization and critical evaluation of principles of instructional and effective theories. Prerequisite: TW 310 and TW 210.

TW 351 Project Seminar in Instructional Design and Technology 3 s.h.
May be repeated. Same as TW 310.

TW 355 A.A. Project in Instructional Design and Technology 3 s.h.
Supervision of student project for the A.A.

TW 357 M.A. Thesis in Instructional Design and Technology 3 s.h.
Prerequisite: completion of all required courses.

TW 358 E.D. Project's Instructional Design and Technology 3 s.h.
Prerequisite: completion of all required courses.

TW 450 Ph.D. Thesis in Instructional Design and Technology 3 s.h.
Prerequisite: completion of all required courses.

Secondary Education

Cheryl Marlin J. Steng

Professor: Robert M. Fitch, Steven K. Heddes, Vivian N. Larzou, Dorothy McDonald, John E. Pecor, Harold L. Schroen, Robert E. Yager, Marilyn J. Steng


Associate professors emeriti: Lester G. Renz, Leonard J. Nemick

Adjunct associate professors: John R. Dows, Kathleen M. Driscoll, Charles K. Driscoll, Charles K. Driscoll, Charles K. Driscoll

Senior associate professors: Kathleen M. Driscoll, Charles K. Driscoll, Charles K. Driscoll

Assistant professors: John F. Driscoll, Kathleen M. Driscoll, Charles K. Driscoll, Charles K. Driscoll

Assistant professors emeriti: John F. Driscoll, Kathleen M. Driscoll, Charles K. Driscoll, Charles K. Driscoll

Instructor: Richard P. Janes

Degrees offered: M.A., M.E., M.A.T., Ed.S., Ph.D.

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 College Catalog. Graduates may be admitted to a program leading to teacher certification as "ordination 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 Section of Secondary Education Office, 215 South Linwood Center. Candidates for secondary school teaching certification may also receive approval to teach in additional subject areas by completing an approved program of 20 or more semester hours of course work in three areas.

Secondary school teacher preparation programs are provided in the following areas:

Art

Athletic training

Communication Studies (Speech)

English

Foreign Languages—Spanish, French, German, Russian, and Latinf

Health Education

Home Economics

Jornalism

Mathematics

Music

Physical Education

Recreation

Science, including general science, physical science, biology, chemistry, physics, and earth science.

Social Science, including social studies geography, economics, history, political science, psychology, and sociology

Available on an additional approval area. 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 for both elementary and secondary level certification.

Undergraduate candidates for certification in a subject area must complete the following requirements. In addition to the requirements in their major:

One of the courses TW 30-99:

Introduction to Teaching in a specific subject with TW 30-99 Issues in Education

7-12 Education-M Philosophy and Measurements

2 s.h.

2 s.h.

3 s.h.
TW 32 Introduction to Microcomputers for Teachers 1 s.h.
TX 170 Human Relations for the Classroom Teacher 3 s.h.
The methods of teaching course in the major field 2-3 s.h.
Student teaching 2-3 s.h.
Education 2-3 s.h.

With their advisor's approval, graduate students may elect equivalent graduate courses in lieu of TX 300, 310, and 320. Students must complete the methods course in their major teaching field prior to student teaching.

Students in secondary education may do their student teaching at the Center for Urban Teacher Education (CUTL), through the Regency Service Program, or in the Consortium Program, provided the College of Education has an agreement with a metropolitan school district. Student teaching will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the traditional school setting. The site's contract with the College of Education will be established only if the proposed student teaching site can be approved by the College of Education. Prior to student teaching, additional information about the various opportunities for student teaching will be obtained in the Office of Student Services. The deadline for the Office of Student Services to file the application for student teaching must be March 15, prior to the academic year during which student teaching is desired.

Admission

Prior to taking the pre-professional education courses (courses numbered 25, 35, 45-75) 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 in the Office of the Dean of Liberal Arts. In order to be eligible for admission, students must have completed a minimum of 28 semester hours of coursework with a minimum grade point average of 3.2. Completion of the application will be based on a grade point average in the major, and other criteria relevant to teaching success. If an applicant is denied admission to the TEP, the student has the option of appeal to the Graduate Committee. The appeal must be filed in the Office of Student Services. The student's appeal will be heard by the Graduate Committee. The decision of the Graduate Committee is final.

The purpose of the program is to prepare highly qualified teachers for elementary and secondary schools and to establish graduate programs. The major academic requirements for admission to the TEP must be completed by the time admission is granted.

Applicants must have completed the minimum of 28 semester hours of coursework with a minimum average of 2.5. The student must have completed a minimum of 28 semester hours of coursework with a minimum grade point average of 3.2. Completion of the application will be based on a grade point average in the major, and other criteria relevant to teaching success. If an applicant is denied admission to the TEP, the student has the option of appeal to the Graduate Committee. The appeal must be filed in the Office of Student Services. The student's appeal will be heard by the Graduate Committee. The decision of the Graduate Committee is final.

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Admission to Student Teaching

While admission to the TEP, which permits students to take certain College of Education courses, requires a 2.5 cumulative grade-point average, for most majors higher criteria must be met for admission to student teaching. Students should consult their secondary education advisor on the College of Education office for the student teaching admissions requirements for their certification program.

Graduate Programs

The Division of Secondary Education offers, either jointly with other departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communications studies education, curriculum and instruction, developmental reading, English, foreign language education, home economics education, mathematics education, music education, physical education, science education, and social studies education. Students in the Master of Arts program are offered several different educational programs. Master's programs are offered in the following fields: education, educational foundations, educational research, educational technology, educational administration, educational psychology, and educational policy.

Art Education

Master of Arts

The master's degree program is designed to prepare students for teaching in the Schools of Art and Art History with the cooperation of the College of Education. Students must complete the following requirements for admission to the School of Art and Art History:

Applicants must have completed the minimum of 28 semester hours of coursework with a minimum grade point average of 3.2. Completion of the application will be based on a grade point average in the major, and other criteria relevant to teaching success. If an applicant is denied admission to the TEP, the student has the option of appeal to the Graduate Committee. The appeal must be filed in the Office of Student Services. The student's appeal will be heard by the Graduate Committee. The decision of the Graduate Committee is final.

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education seminars, 15 semester hours in a related area (e.g. aesthetics, anthropology, higher education, early childhood education, psychology, sociology); and 15 semester hours in theses and tool courses: 75:306 or 75:308 Introduction to Research in Art Education.

Comprehensive examinations, both oral and written—The written examination consists of a research problem assigned by the examining 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). 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 committee; an oral examination on the dissertation is the Ph.D. final examination.

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 2.5. 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, 76:300;

A graduate seminar involving significant research; and

Other credits recommended by advisor and/or committee.

Successful completion of a paper or project involving substantial scholarly investigation 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 two-hour segments to be defined 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 a.h.):

73:186 Curriculum Foundations 2-3 a.h.
7F:117 Philosophy of Education (or its equivalent) 2 a.h.
7F:257 Educational Measurement and Evaluation 3 a.h.
or
7F:255 Construction and Use of Evaluation Instruments 3 a.h.
or
7F:150 Introduction to Educational Measurement 3 a.h.
75:281 Junior High School and Middle School Curriculum 3 a.h.
75:291 Secondary School Curriculum 3 a.h.
75:300 Design and Organization of Curriculum 3 a.h.

Research tools—selected in consultation with the adviser, typically:
7F:145 Introduction to Statistical Methods 3 a.h.

Capstone (4-6 a.h.)—in a subject field such as English;

Elective(s)—selected in consultation with adviser to complete a total of 30-32 semester hours.

Thesis—for students electing a thesis program.

75:393 Master's Degree Thesis 2-4 a.h.

Two three-hour comprehensive examinations—one in curriculum and one in a related field in education or in a cognate 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 a.h.):

75:186 Curriculum Foundations 3-3 a.h.
75:281 Junior High School and Middle School Curriculum 3 a.h.
75:291 Secondary School Curriculum 3 a.h.
75:300 Design and Organization of Curriculum 3 a.h.
75:393 Problems of Curriculum Planning 3 a.h.

At least two advanced supervision courses in secondary or elementary school subject fields 6 a.h.

7F:257 Educational Measurement and Evaluation 3 a.h.
or
7F:255 Construction and Use of Evaluation Instruments 3 a.h.
or
7F:150 Introduction to Educational Measurement 3 a.h.
75:390 Problems in Supervision 2 a.h.
75:293 Individual Instruction in Secondary Education (Practicum) 2-3 a.h.

A minimum of two research tools, typically statistics, data processing, research design, or foreign language 5-12 a.h.

Elective(s)—(32-35 a.h. to be chosen in consultation with adviser.)

Recommended electives include:

7F:139 Educational Sociology 2 a.h.
7F:117 Philosophy of Education 2 a.h.
7F:131 Educational Psychology 3 a.h.
7F:170 Introduction to Psychology of Reading 3 a.h.
78:297 Administrative Leadership Theory 4 a.h.
78:190 Introduction to Instructional Design and Technology 3 a.h.
75:130 Exceptional Persons 3 a.h.

All doctoral candidates are required to complete at least 6 semester hours of cognate work in such areas as sociology, psychology, or political science.


Candidates take three three-hour comprehensive examinations in secondary school curriculum and two related fields in education or in a cognate field.

Developmental Reading

Master of Arts
This program is designed to prepare graduate students for positions as reading
speciaiiist in kindergarten and grades 1 through 12. Successful completion of this program combined with four years' successful teaching experience qualifies the student for certification as a reading specialist.

See "Early Childhood and Elementary Education" in this section of the Catalog for a complete description of the program.

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 in secondary education in 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 20 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 area(s) may be literature, or secondary school teaching, curriculum, reading, composition, speech and drama, language development, visual and auditory literacy, foreign language, children and adolescents. An advisor and the student will plan the program of study. Nine semester hours must be earned in courses numbered 500 or above. The student will take a comprehensive examination in English education and in his/her chosen areas(s).

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 have acquired 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 course work in professional education courses 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 2-3 s.h.
75:196 Individual Projects in Laboratory Practice 1-3 s.h.
75:120 Human Relations for the Classroom Teacher 3 s.h.
75:194 Methods: High School Reading 3 s.h.
75:195 Developing Reading Skills in the Secondary School 3 s.h.
Basic competency in microcomputing.
75:155 Methods: English 3 s.h.
75:197 Seminar: Curriculum and Student Teaching 2 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 to 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 25th percentile on verbal test (100 norms), and two years 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 revisualized annually.

Degree Requirements

A minimum of 72 semester hours is required.

Area of Specialization: Teaching of English (9-16 s.h.), including four of the following courses:
75:240 Supervision of Elementary School Language Arts 3 s.h.
75:328 Seminar: Research and Current Issues 3 s.h.
75:319 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 and electives (56-63 s.h.): may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, special education, educational history, rhetoric and composition, sociolinguistics, literary criticism, educational measurement, speech and dramatic arts. Students and advisor will select two areas of specialization in addition to the teaching of English. Areas of specialization will typically require a minimum of 5 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 pedagogical 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 philosophy courses in a foreign language discipline and the following professional education courses:
75:90 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:

- 76.225 Current Issues in Mathematics Education 2-3 s.h.
- 71.231 Teaching Computer Professionals in Secondary School Mathematics 2-3 s.h.
- 71.236 The Teaching of Geometry 2-3 s.h.
- 71.237 Teaching Mathematics in Middle School and Junior High School 2-3 s.h.
- 71.238 Teaching the Low Achiever in Mathematics 2-3 s.h.
- 75.328 Teaching of algebra 2-3 s.h.
- 75.330 Seminar: 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 25 semester hours of credit.

Three two-hour comprehensive examinations: one in 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 over the required courses in analysis, algebra, and education. The examination will assess the candidate's knowledge of mathematics and his or her knowledge of the relevance of specific concepts relating 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 ten years previously.) Minimum course requirements are for exceptional students.

Typically, a program will involve 60 to 90 semester hours.

The purpose of the program is to prepare independent research mathematicians, teachers of 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 204.115, 204.116, 225.120, and 225.121. 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 selected from advanced mathematics 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 in all University of Iowa graduate work in mathematics,
Have a cumulative grade-point average of 3.0 in all graduate work,
Have a cumulative grade-point average of 3.0 in all University of Iowa graduate work.

These 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 applicant'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 a computer language and knowledge of statistics is required.

A dissertation on a research project in mathematics education. A prospectus of the proposed research must 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 a deeper insight 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 music courses, is required for admission to regular status.

Degree Requirements

General requirement:
25:32 Introduction to Graduate Study in Music 2 s.h.

Music theory:
5:24 Introduction to Contemporary Analysis and Theory 3 s.h.
25:141-142 Electives 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 s.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) 4-6 s.h.

Two semester hours of ensemble credit.

Two-four semester hours of applied music.

The amount of elective credit applicable toward the M.A. degree is dependent upon the scope and nature of the work undertaken in the program. The student is expected 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 functions 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, or

Public school positions—music supervisors, research and curriculum director, 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 3.25 grade-point average on graduate work (excluding grades in courses) have a score above the fifth percentile on the verbal ability section of the Graduate Record Examination, and a minimum of two 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 is made by the music education faculty before qualifications for admission are fully determined.

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 (21-25 s.h.)

General
25:321 Introduction to Graduate Study in Music 4 s.h.
25:301 Advanced History and Literature of Music I 3 s.h.
25:302 Advanced History and Literature of Music II 3 s.h.
25:141 Seminar: Contemporary Issues in Music Education 3 s.h.
25:142 Seminar: Special Topics in Music Education 3 s.h.
25:145 Behavioral Research in Music 2 s.h.
25:206 Curriculum Development in Music Education 2 s.h.
75:240 Foundations of Music Education 4 s.h.
25:141 Psychology of Music 2 s.h.
75:140 Research Methods in Music Education 3.5 s.h.
25:140 Music and Psychological Factors in Music Education 3 s.h.
25:141 Seminar: Contemporary Issues in Music Education 3.5 s.h.
25:142 Seminar: Special Topics in Music Education 3 s.h.
75:141 Introduction to Statistical Methods 3 s.h.
75:240 Selected Applications of Statistical Techniques 3 s.h.
25:141 Research, Measurement, and Evaluation in Music Education 3 s.h.

Electives

Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations

The comprehensive examination is an in-depth examination of the student's knowledge of 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 3.0 or 3.0 grade-point average in history and social science courses; preferred, Graduate Record Examination (GRE) Aptitude Test score of 1000 composite of verbal and quantitative.

Degree Requirements

Thirty-eight semester hours designated among history, social sciences, or related areas, with a minimum of 18 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 23 semester hours of 98.201, 98.202, or 75.225 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 studies 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 baccalaureate degree and 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 98.201, 98.202, or 75.225 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 satisfied by the requirements in each of the fields chosen or a language requirement.

Comprehensive Examinations:

Normally three three-hour examinations, one 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 study are considered by the candidate's committee.

Dissertation

A dissertation on a research problem in history, the social sciences, or related area in which case the dissertation committee will be a faculty member of the appropriate department, or on a research problem in the social studies education, in which case the dissertation committee 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, the 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 assistantships are available for students pursuing Ph.D. degrees in secondary education. Assistantships may range for no more than 12 semester hours per semester, and, except with special permission, must not exceed 6 semester hours per semester. Assistantships vary in accordance with the faculty's assignments and, unless otherwise approved, are available to students in specified disciplines in the social sciences. Assistantships in some liberal arts departments may also be available to associate or non-degree educational students. Candidates with appropriate credentials should apply directly to the department in question or contact the College of Education advisor directing the program in their field.

Courses

73:90 Introduction to Teaching Art

3.0 h.

73:90 Introduction to Teaching English

3.0 h.

73:90 Introduction to Teaching Speech

3.0 h.

73:90 Introduction to Teaching Science

3.0 h.

73:90 Introduction to Teaching Social Studies

3.0 h.

73:90 Introduction to Teaching Health and Physical Education

3.0 h.

73:90 Introduction to Teaching Music

3.0 h.

73:90 Introduction to Teaching Physical Education

3.0 h.
Special Education

75:304 Seminar: Secondary Reading
Analysis and evaluation of pertinent research in secondary reading utilizing historical and comparative procedures. Prerequisites: 23:044 and consent of instructor.

75:306 Supervision Methods to Improve Instruction
Methods for improving school efficacy in developing management skills in discipline, covering: (1) Decision-making, (2) Motivating performance, (3) Dealing with resistant students, (4)行政 intervention, and (5) Problem-solving. Field experiences, emphasis on classroom development and maintenance of effective teaching. Appropriate for master's degree, department heads, principals, supervisors and specialist in special education. Prerequisite: consent of instructor.

75:306 Introduction to Research in Art Education

75:307 Seminar: Artwork Evaluation
Theories of aesthetics as related to teaching, instructional and learning modes: nature of student experiences in visual and intellectual arts; aesthetic model as it relates to other disciplines in education, review of available, educational programs. May be repeated.

75:310 M.A. Seminar: English Education
Discussion of significant developments in English education from primary and selected grades. Prerequisites: consent of instructor. Same as 55:310.

75:310 Seminar: Recent Developments in Literature for Adolescents
Recent trends in teaching and research studies of their choices. Offered one semester each year.

75:315 Seminar: Mathematics Education
Analysis of current research, mathematics methodology, and curricular developments in mathematics education. Topics vary. Prerequisite: for M.A. candidates. May be repeated.

75:345 Seminar: Special Topics in Mathematics Education
Topics of research in the preparation of student teachers, research into the teaching of mathematics, and studies of current events in mathematics education, available to graduate students with permission of instructors. May be repeated.

75:345 Seminar: Special Topics in Mathematics Education
Topics of current research in the teaching of mathematics, available to graduate students with permission of instructors. May be repeated.

75:545 College Music Workshop
Methods and techniques for teaching disabled students in public schools and colleges. Offered one semester each year and regularly during the academic year. May be repeated.

75:545 Public School Curriculum in Physical Education
Teaching of major social, psychological, and educational factors influencing the development of an effective physical education program. Lecture and independent investigation of creative projects required. Sear as 25:545. PHD.

75:559 Seminar: Science Education
Science education in elementary and secondary education, creative research, manuscripts, project history.

75:551 History of Science and the Bible in Science Education
History of science and the Bible in science education.

75:555 Science Education Internship
Program requirement and implementation.

75:556 Science Education Internship: Teacher Education Internship and Administration

75:557 Science Education Internship: Teaching and Learning Strategies

75:558 Science Education: Research Models and Conceptual Scheme Internship

75:57 Seminar: Current Issues in Art Education
Analysis of literature in art education and related problem areas. Required of Ph.D. candidates in art education. May be repeated.

75:580 Current Research Emphasis in Science Education
Sear as 55:580. Review of significant on-going research programs in the field, emphasis on faculty line of research.

75:580 Problems in Superstructure
Research and program development in science education, particularly concerned with supervision, alternative possibilities for these roles as school instructional staff, designing curriculum development systems.

75:580 Problems of Curriculum Planning
Designing and conducting programs of curriculum development techniques for designing curriculum materials, includes field experience.

75:580 Field Service Project in Secondary Education
Prerequisite: consent of instructor.

75:580 Master's Degree Thesis
Prerequisite: consent of instructor.

75:582 Special Educational Research in Secondary Education
Prerequisite: consent of instructor.

75:465 Seminar: Child Art and Art Education

75:465 Research in Art Education
Individual research under supervision, applicable to thesis preparation and to doctoral program development. May be repeated.

75:465 Research in Science Education
Planning of individual research projects by M.S. and Ph.D. candidates.

75:465 Seminar: English Education
Discussion of broad and recent problems in English education at all levels in English in the secondary schools. May be repeated. Prerequisite: consent of instructor. Same as 55:465.

75:465 Social and Psychological Factors in Social Education
Social and psychological factors affecting social education, their applications and instructional practices in work, role of social education in the secondary schools, available to other graduate students with permission of the instructor.

75:465 Seminar: Health Education
Prerequisite: consent of instructor.

Special Education

Cheryl Kennedy A. Kasee
Professors: Alan J. Franklin, Alfred Ryzlak, Clifford H. House, Kenneth A. Kanold, Myriam Peltz
Assistant professors: Louis E. Brown, Stewart M. Taylor, Timothy E. Jacob, John Rady, Jr., David Wagner
Assistant professor emeritus: Astoria J. McKiernan
Assistant professors: Teresa K. Osgood, Gary M. Sasse
Adjunct assistant professor: Audrey Mueller
Lecturer: Lorraine J. Karlitzitz, Phyllis M. Hagan

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 their seclusion 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 81) with the option of also qualifying to teach the physically handicapped;

To teach the mentally retarded at the secondary level (State of Iowa Approval 81, Endorsement 20);

To teach preschool handicapped (State of Iowa Endorsement 90).

The elementary-level program requires that students also complete the requirements for certification in elementary education (State of Iowa Approval 10) at the regular secondary level. Students must complete the major in special education, including student teaching with the mentally retarded at the secondary level. Students interested in teaching the preschool handicapped must complete a major in early childhood education.

Program Requirements

Elementary Mental Retardation

First Year
71:530 Introduction to Assessment in Special Education
3 s.h.

71:530 Exceptional Persons
3 s.h.

71:531 Mental Retardation
3 s.h.

79:92 Introduction to Microcomputers
1 s.h.

Second Year
71:531 Teaching Mildly Mentally Retarded Elementary
3 s.h.

71:132 Practicum with Mildly Handicapped
2 s.h.

71:136 Teaching Moderately Mentally Retarded
2 s.h.

71:134 Practicum with Moderately Handicapped
2 s.h.

Third Year
71:192 Practiced Teaching with Mentally Retardable
3 s.h.

Students completing this program will be recommended for State of Iowa Approval 81 (Mental Disabilities 9).

Program Requirements

Elementary Mental Retardation
Elementary Physical Handicap

First Year
70.159 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
7.15 Introduction to Speech and Hearing Problems and Disorders 3 s.h.

Second Year
70.138 Methods of Teaching Physically Handicapped 3 s.h.

Third Year
70.139 Supervised Teaching with Physically Handicapped 7 s.h.

Second Year Mental Retardation

First Year
70.130 Introduction to Assessment in Special Education 2 s.h.
70.135 Exceptional Persons 3 s.h.
70.120 Mental Retardation 3 s.h.
70.151 Issues in Education 2 s.h.
70.157 Educational Psychology and Measurement 3 s.h.
70.159 Audiological Equipment for Instruction 1 s.h.
70.120 Introduction to Microcomputers 1 s.h.
70.132 Introduction to Sociology 3 s.h.

Second Year
70.152 Teaching Mildly Mentally Retarded 3 s.h.
70.153 Practicum with Mildly Handicapped 2 s.h.
70.154 Practicum with Moderately Handicapped 2 s.h.
70.133 The Environmentally Different in Educational Settings 3 s.h.
70.155 Methods: Mathematics for Low Achievers 3 s.h.
70.155 Developing Reading Skills in the Secondary Schools 2-3 s.h.
70.155 Career Guidance and Job Placement (undergraduates cannot take this course by correspondence) 3 s.h.

TP.170 Introduction to Psychology of Reading 3 s.h.
70.159 Selection and Use of Media for Introduction to Microcomputers for Teachers 1 s.h.
70.141 Juvenile Delinquency or 24.140 Criminology 3 s.h.
70.151 Introduction to Learning Disabilities 3 s.h.
70.152 Introduction to Behavioral Disorders 3 s.h.
70.170 Human Relations for the Classroom Teacher 3 s.h.
A course in American history or American government 2 s.h.

Third Year
70.152 Supervised Teaching with Mentally Retarded 10 s.h.

Students completing this program are recommended for State of Iowa endorsement in Special Education.

Second Year Mental Retardation

First Year
70.139 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
7.15 Introduction to Speech and Hearing Problems and Disorders 3 s.h.
70.120 Methods of Teaching Preschool Handicapped 3 s.h.
70.136 Practicum with Preschool Handicapped 2 s.h.
70.136 Teaching Moderately Mentally Retarded 2 s.h.

Second Year
70.153 Practicum with Mildly Handicapped 3 s.h.
70.154 Practicum with Moderately Handicapped 2 s.h.
70.133 The Environmentally Different in Educational Settings 3 s.h.
70.155 Methods: Mathematics for Low Achievers 3 s.h.
70.155 Developing Reading Skills in the Secondary Schools 2-3 s.h.
70.133 Career Guidance and Job Placement (undergraduates cannot take this course by correspondence) 3 s.h.

TP.170 Introduction to Psychology of Reading 3 s.h.
70.159 Selection and Use of Media for Introduction to Microcomputers for Teachers 1 s.h.
70.141 Juvenile Delinquency or 24.140 Criminology 3 s.h.
70.151 Introduction to Learning Disabilities 3 s.h.
70.152 Introduction to Behavioral Disorders 3 s.h.
70.170 Human Relations for the Classroom Teacher 3 s.h.
A course in American history or American government 2 s.h.

Third Year
70.152 Supervised Teaching with Mentally Retarded 10 s.h.

Students completing this program are recommended for State of Iowa endorsement in Special Education.

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. Requirements for the graduate programs are as follows:

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., M.S., and Ph.D. degree levels. Initial certificates or additions to present certificates are available at the graduate level in elementary and secondary teaching of exceptionalities 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 are seeking an advanced degree in special education, with the primary objective of becoming certified as special educators. 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 demonstrate evidence of special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preferential treatment.

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. The program requires a minimum total of 38 semester hours. In addition to the general administrative requirements listed below, requirements for admission to this program are as follows:

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.
Admission
Graduate admission requirements of the Division of Special Education conform to those used generally by the College of Education, with the following additions: Completion of the Graduate Record Examination (GRE) Aptitude Test before being admitted to the program. GRE scores must be 1000 or higher.

Facilities
Special facilities available to students in special education include the University Hospital School (for mentally and physically disabled) and the University Psychiatric Hospital/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., Ed.D., and Ph.D. programs. The Janet Zober Memorial Tuition Stipend is available to an undergraduate student in special education.

Courses
TCL 204 Introduction to Assessment in Special Education 3 s.h.
TCL 205 Students with Mild Disabilities 3 s.h.
TCL 207 Teaching Mildly Handicapped: Elementary 3 s.h.
TCL 301 Teaching Mildly Handicapped: Secondary 3 s.h.
TCL 303 Psychometrically Handicapped 3 s.h.
TCL 310 Teaching Socially Handicapped 3 s.h.
TCL 313 Teaching Mildly Handicapped: Secondary 3 s.h.
TCL 314 Teaching Mildly Handicapped: Elementary 3 s.h.
TCL 401 Teaching Psychopathologically Handicapped 3 s.h.
TCL 410 Interdisciplinary Programs for Disabled 3 s.h.

Doctor of Philosophy
The purpose of the Ph.D. program in special education is to prepare students as consultants, school psychologists, directors of special education, and university teacher trainers and researchers. The program allows students to study and practice extensively in their area of interest in special education. The program requires a minimum of 90 semester hours.

Doctoral candidates are required to study and practice a minimum of one year of full-time teaching experience with exceptional children, except in the school psychology program. The admissions committee gives preference to applicants with several years of experience.

Methods of Teaching Physical Disabilities
Introduction to theory and practice of methods of teaching physical disabilities, role and responsibility of different team members, working with children, counselors and teachers who work with physically disabled children. Prerequisites: TCL 207 or consent of instructor.
Student teaching at West High School, Iowa City
Engineering is the profession in which a knowledge of the mathematical 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 professions. Such opportunities include design, production, 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 chosen special area 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 degree. The degree includes major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the B.S. 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 and 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 in 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, 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 50 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 ZIM 135 Engineering Calculus II, or their equivalents, with a grade of “C” or better, in each course.

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 credit 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 36 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 as preparation.

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 2.25.

Completion 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 programs in engineering are designed to assure an adequate foundation in mathematics, basic and engineering sciences, the humanities and the social sciences, and engineering design. Added to this basic preparation in an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems, the overall objective of the curriculum programs 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 the practice of engineering.

The curriculum is structured in four parallel pathways extending through most of the entire four years of 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 programs. 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 ST 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. Each course is required for a specific engineering program.

In addition to the core program and the humanities and social sciences sequence, which 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 adviser. 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 1/2 Principles of Chemistry I 3 a.h.
- 10 Rhetoric 4 a.h.
- 10 1/2 Rhetoric 4 a.h.

**Second Semester**

- 4 1/2 Principles of Chemistry Lab I 2 a.h.
- 10 Rhetoric 4 a.h.
- Humanities or social science elective 3 or 4 a.h.

**Combined 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 enter this program by choosing the option of the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisor in each of the two 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 the 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 both colleges, the student is, in many cases, satisfying the requirements for both colleges by taking one particular course.
Combined College of Engineering-M.B.A. Program

The Combined College of Engineering-M.B.A. Program (A.B.I.) has been initiated by the College of Business Administration for superior undergraduates 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. Exceptions students with interest 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 A.B.I. program must have completed two years of engineering study, earning a 3.5 grade-point average or better, and indicated the intent to pursue both degree programs simultaneously on a full-time basis. Students selected for admission to this program may be candidates for 850 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 A.B.I. program does not guarantee admission to the Graduate College. However, since the undergraduate admission requirements are very high and the undergraduate feel is correct, it is anticipated that admitted students should readily qualify for admission to the graduate M.B.A. program upon application. A cooperative education internship is required for all admitted M.B.A. students. This professional experience with private industry is considered to be an integral part of the program and generally is scheduled for the summer semester prior to the completion of the bachelor's degree. The M.B.A. curriculum is designed for students completing two years of courses in business are required. The program consists of three main categories: 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 qualify by proficiency exam or through equivalent course work for a waiver from foundation courses. Engineering students we assigned a major adviser in the College of Engineering. Upon acceptance into the A.B.I. program, advising for the M.B.A. phase will be provided by the operations coordinator of the College of Business Administration. Coordination of the combined degree program for the A.B.I. 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 pursue a career in planning in either the public or private sector. Planning encompasses the development of alternatives to improve the quality of the life in cities and regions. Planners devise courses of action in response to a variety of problems, opportunities and assess the likely outcome of these actions. Planners are involved in diverse fields such as land use, transportation, housing, environmental quality, public services, and economic development.

This special program enables students 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 requirement for two degrees. The student should apply for 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, the University of Iowa.

The curriculum is based on the general philosophy that planners must develop the theoretical and practical skills that permit them to identify issues and recommend feasible ways of solving these issues, as well as the professional skills (e.g., report writing, presentations, and financial planning). This provides for a thorough understanding of planning in various organizational and political environments. Planners must be well trained in topics such as economic development, computer literacy, financial management, and other techniques used in the field. At the heart of The University of Iowa planning program is an integrated core curriculum. Its purpose is to provide a rigorous foundation for the analytic study of public and social issues. The core program is designed to be completed by engineering students in the last two years of undergraduate programs. The core program is designed to be completed by engineering students in the last two years of undergraduate programs. These core courses must be completed by the fall of the senior year. At the University of Iowa, the core program requires completion of a minimum of one year. Students may be approved by the student's faculty advisor in the second year. The student will be approved by the student's faculty advisor in the second year after completing the department chair of that program (the current petition form is worked out for this purpose) and be submitted to the office of the dean for inclusion 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 or minor in any degree-granting department or approved program in the College of Liberal Arts. A minor will not be counted in 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 designation is included in their transcript.
Minor in the College of Business Administration
Requirements for a minor are: two economics courses, two accounting courses, a marketing course, a management course, a finance course, and a legal environment course. In addition to these required courses, a student normally would complete a calculus course, a computer course, and a probability and statistics course. Engineering majors satisfy the mathematics, statistics, and computer science requirements with courses 120-35 57-L and 233-39. A 2.0 grade-point average in the courses applicable to the minor is required. Students who wish to complete a Master of Business Administration degree later should elect courses which will satisfy M.B.A. requirements.

Minor in the College of Liberal Arts
Requirements for a minor are: a minimum of 15 semester hours in the minor department, at least 12 of which are in advanced courses acceptable to that academic unit (students should consult with the minor department to identify acceptable courses). The student must achieve a 2.0 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken on a pass/fail basis.

Cooperative Education Program
Cooperative education involves the integration of academic work with practical experience in the student's major program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government. While the student can earn a substantial portion of curricular expenses during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured through an examination of the work experience provided by participating employers and by student interest and ability to work the situation.

The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods, with a corresponding improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many non-technical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option normally is five years and includes the equivalent of at least one full year of work experience.

The program is an option available to qualified students on a voluntary basis.

Undergraduate Academic Advising Center
The Undergraduate Academic Advising Center helps students who have not selected a program of study. Included in this group are students who may be considering engineering, among other fields of study, but who are not yet ready to declare a specialized major. For help in choosing a program, students are assigned an adviser from the center rather than from a specific department. These students meet frequently and regularly with their assigned adviser for help with various academic matters, ranging from building a schedule of courses for the next semester to receiving counseling on choosing a career. For the convenience of students, the adviser's offices are located in the residence halls. For more information, students may contact the Director, Undergraduate Academic Advising Center, Burge Hall, The University of Iowa.

Academic Standards
Semester Load Limit
A normal academic load is about 16 semester hours of course work for a semester. A semester hours for a summer session. No student may register for more than 18 semester hours in one semester, or 9 semester hours in a summer session, without the permission of the assistant to the dean.

Classification of Students
Students in the College of Engineering are classified by the number of semester hours of credit earned applicable to a bachelor's degree in engineering, according to the following:

- Freshman—fewer than 28 semester hours;
- Sophomore—28 to 55 semester hours;
- Junior—56 to 89 semester hours;
- Senior—90 or more semester hours.

Grading System
The college uses the four-point grading system, in which grade points are awarded on a scale denoting from A = 4.0. For a full description see "Academic Programs" in the "Learning at Iowa" section of the Catalog.

Academic Probation and Good Standing
A student enrolled in the College of Engineering who fails to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa shall be placed or continued on academic probation:

- Freshman—1.8;
- Sophomore—1.9;
- Junior—2.5;
- Senior—2.0.

A student whose semester and cumulative grade-point averages equal or exceed those appropriate to his/her classification may be considered to be in good standing in the college.

A student will be removed from, or placed on, academic probation only at the end of a semester. A student will not be permitted to register without specific approval following two consecutive semesters on probation. A student who has not made satisfactory improvement in scholarship may be dismissed from the college; such students may petition the assistant to the dean for permission to re-enroll after an interval of two regular semesters.

Dropping and Adding Courses
Courses may be added with permission of the adviser and the instructor during the first three weeks of the semester or first one and one-half weeks of the summer session.

Courses may be dropped with permission of the adviser and the instructor at any time during the first ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week, in which case special approval must be granted by the adviser, the course instructor, and the associate dean. Under no circumstance is a student permitted to drop after the beginning of the scheduled final examination period.

Undergraduates will receive the mark of 'W' for courses dropped before the thirteenth week of the semester or first one and one-half weeks of the summer session. To curtail excessive registrations and dropping of the same course, a student may not drop the same course more than twice. If a student tries to drop the same course for the third time, the registration center will not accept a drop slip for that course and the student must be assigned a grade for the course. Special courses that may be dropped only once may be excluded from this rule.

Withdrawal of Registration
A good student in academic standing who withdraws his or her registration during the final four weeks of a regular semester, or during the final three or two weeks of a summer or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

A student on scholastic probation who withdraws his or her registration at any time without good cause will be considered...
Satisfactory-Fail Courses
The noncredit professional seminar courses, that are required in each of the professional programs, are offered only on a satisfactory/unsatisfactory basis. No other engineering courses are offered on this basis. A 0 (fail) 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 0 (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 condition 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 have completed at least 45 semester hours of study in the college before his or her final registration. Students in the combined engineering/liberal 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 3.5 or above during a given semester or 12 or more semester hours of graded work, with no I's or F's or grades still standing on the current or past semester's records, 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 I's or F's or grades still 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 Program will be awarded college-level credit. For example, students earning scores of 3, 4, or 5 in an AP-level calculus course in the Advanced Placement Program will receive 4 semester hours of credit for course 22M35. 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 22M35 and 22M36. Engineering Calculus II and B. Credit earned through other AP courses also may be applied to other engineering course requirements as appropriate to content and level, so long as credit is already been granted by other means or by course enrollment. Questions about AP credits should be directed to the assistant to the dean.

CLEG 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 area in the social sciences on the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of 12 semester hours of credit may be applied to the total humanities and social science requirements in 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 engineering sciences other than formal course registrations may be granted the opportunity to obtain credit toward graduation by examination. For example, an 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 institute may request the validation of this credit up to a maximum of 12 semester hours by validation. Credit by validation may be granted after the student has completed at least 24 semester hours of course credit at The University of Iowa, which will include appropriate courses for
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 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 in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given at the University near the time of graduation. Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals examination. Following graduation and the successful completion of the engineering fundamentals examination, the graduate receives an Engineer-in-Training (E.I.T.) certificate. The next step in the procedure is to pass an advanced exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate 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 sections for specific graduate programs. Also included in these sections is technical and financial aid available in each program and the principal areas of study for research.

College Facilities

Engineering Library

The Engineering Library is a center of college activity. Its collection includes 75,000 books and 900 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 100 library users.

Iowa Computer-Aided Engineering Network (ICAE)

This facility provides computer support for instructional computing in the College of Engineering. ICAE consists of approximately 500 Apollo Computer engineering workstations. Each of these is a powerful computer together with a high-resolution video display for graphics applications. The Apollo's are tied together by a high-speed network, allowing all stations to share common data, programs, and peripheral devices. The Apollos are augmented by a large number of Apple Macintosh personal computers. The Mainhouse can, at the user's desire, function as stand-alone facilities, or be linked to the Apollo network or Xerox Computing Center facilities. A variety of printers, plotters, and other specialized devices are available through the ICAE network. Software support from ICAE 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.

ICAEnet 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 ICAEnet. The Howard J. Eddy Laboratory for Engineering Computing, located on the fourth floor of the Engineering Building, houses 20 Apollo workstations and 40 Macintoshes together with printers, plotters, and other required equipment. A second, functionally similar facility 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 minicomputer. The laboratory also contains computer-aided design, digitizing terminals, a line printer, and a projection system. It also contains several stand-alone microcomputers. The laboratory is used for teaching computer-aided graphics and design at both the undergraduate and graduate level. Software is available for a variety of applications, including optimal design, finite element analysis, structural analysis and design, and dynamic analysis of mechanical and structural system. Office and plot layout, chemical engineering process flow sheet preparation, and several others. The main group of graphics terminals and associated printer plotters are located in Room 1300 of the Engineering Building.

Computer Services

In addition to local facilities provided by ICAEnet and services of the Weeg Computing Center, students are available to students and faculty of the college. Access to Weeg facilities is available at the Center for Computer-Aided Design, described in this section. The Center for Computer-Aided Design or dedicated PRIME 750 and VAX 11-780 superminicomputers, two high-speed processor processes, 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 11-780 superminicomputers and several color graphics work stations for teaching and research. In addition, a number of microcomputers and microcomputer systems are available. These systems are for specialized use by students and faculty.

Employment Placement Services

The Engineering Placement Office is a resource and service center for students and alumni who are seeking professional employment. It provides programming graduation students with on-campus interviews, job listings, information and assistance with resumes, cover letters, interview techniques seminars, and general advising relative to career decisions. Major resources available to all engineering students and alumni include a comprehensive employer information library, directory of employers especially seeking to hire engineers for full-time and summer positions, current data on hiring projections and starting salaries, and placement data on recent graduates. The Engineering Placement Office, with interview rooms and resource area, is located on the third floor of the Engineering Building.

Organization of the College

The College of Engineering is organized into six departments and three research units. The departments are biomedical engineering, chemical engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering. Each department offers an undergraduate degree, with the exception of biomedical engineering, and all graduate degree programs. A graduate program in biotechnological as the graduate level is available through the Mechanical Engineering Department. In addition to the departmental programs offered in the college, some students may either take a nontechnical undergraduate or graduate degree program or select an undesignated degree program of students who want to tailor-make a special program that may not be available through the traditional majors. Information about the undergraduate degree programs is given in later sections.

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 for its years in 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: applications of turbulent shear flow; boundary layers (with emphasis on thick and three-dimensional boundary layers); viscous aerodynamics, computational fluid mechanics and hydrodynamics; ship hydrodynamics; hydrology; water-resource systems; river engineering; sediment-transport mechanics; oceanic engineering; hydraulic structures; biological fluid mechanics; water-quality dynamics; hydraulic-energetics 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 programs, IHR provides advanced-degree students and postdoctoral trainers unique opportunities for valuable research, educational, and engineering experiences.

Center for Materials Research

The Center for Materials Research was founded on the philosophy that 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 biomaterials and biosensors. Specialized projects include tissue engineering, nerve regeneration, cardiovascular surgery, prosthetic heart valves, bone and ligament biomaterials, replacement, joint replacement, pulsed electromagnetic effects on tissue, vibration white finger, 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 members 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-system dynamics and design, control-system analysis, structural optimization, and dynamic computer graphics. A research facility consisting of PRIME 750 and S/3X1- 780 supermini-computers, CMI 640 and 6430 arithmetic processors, graphics work stations, a dynamic graphics system, and other related computer support equipment supports the faculty, staff, and students associated with the center.

Faculty, staff, and students participating in the center develop and distribute computer software to government and industrial agencies for use in a broad spectrum of mechanical and structural design activities.

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 digits 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 a more detailed listing of course numbers and the information they convey about level and type of course.

1-9—Freshman core courses
10-19—Sophomore core courses
20-29—Junior core courses
30-39—Required courses in undergraduate programs

91-94—Undergraduate professional program seminars
95-97—Contemporary topics courses for undergraduates
98—Individual investigation courses for undergraduates
101-109—Courses for which little or no engineering, science, or mathematics background is required
110-118—Undergraduate elective or lower level graduate course
190—Readings courses for non-engineering majors
191-194—Seminars for undergraduates and graduates
195-197—Contemporary topics courses for undergraduates and graduates
198—Individual investigations for graduates
199—M.S. thesis research
210-299—Upper level graduate courses
291-294—Seminars for graduates
295-297—Contemporary topics courses for graduates
299—Ph.D. thesis research

The courses offered by each department are listed in the department's section by disciplinary area, starting with the lowest level course and proceeding to the highest level course. Most courses have prerequisites stated in terms of courses at this University, equivalent academic background may have been obtained by a student through previous work at other colleges and universities. The student should consult with the course instructor if there is any question concerning the academic background needed for a particular course, and the student should obtain the consent of the instructor to register for the course. Engineering students may enroll in any course in the College of Engineering if the student meets the course prerequisites and corequisite requirements. Non-engineering majors may enroll in engineering courses only by consent of the assistant to the dean. Consent for enrollment in an engineering course will be based on space available, as well as on the mathematics, science, and engineering course background of the student and that considered necessary to satisfactorily undertake the course work.
Engineering Core Courses

All of the undergraduate engineering curricula, which are detailed in the following sections, build upon a core program described in the earlier section entitled Undergraduate Curriculum. Course descriptions follow those courses of the core program that are offered through the College of Engineering.

Not all of the following courses are required for each engineering major. For course requirements in a specific major, see the curriculum listing in the section for that major. None of the following courses are available to non-engineering majors unless special permission is obtained from the assistant to the dean.

57000 Pre-Task Engineering Cooperative Education (1-2 s.h.) Students are enrolled for this program to develop familiarity with and the opportunity to work with a professional through a course already completed by the student while participating in the design and goal set in previous pr- and g-nr level classes, hold office hours for students, and develop classroom materials.

571 Introduction to Engineering (2 s.h.) Survey of all of the fields of engineering, presenting an approach to problem-solving using engineering principles. Computer 128 or 228.

572 Engineering Graphics (4 s.h.) Basic graphics techniques used in contemporary engineering including orthographic projection, perspective construction, computer-aided design, and visual vectors interaction in computer graphics with exercises using the CADOS computer network.

574 Engineering Computer Applications Digital computer systems and applications FOUNDATION: algebraic and logical operations, loop, subroutines, loop vectors interaction in computer graphics with exercises using the ADEPT computer network.

575 Statics (4 s.h.) Vector algebra, forces, couples, equilibrium mechanics, statics and dynamics, equilibrium analysis of particles and rigid bodies, applications. Computer 128 or 228.

576 Dynamics (4 s.h.) Vector calculus, Lommel's law, dynamics of particles, motion, equilibrium of rigid bodies, and rigid body motion in plane motion, applications. Computer 128 or 228.

577 Subdivision of Electrical Engineering (4 s.h.) Course includes the engineering laws of electricity and electromagnetism, Buck's tests, KVL and KCL, and network analysis, transient response, and circuit steady-state analysis of simple and complex. Computer 128 or 228.

5712 Linear System Analysis (4 s.h.) Treatment of linear system analysis in electromagnetic, development of various techniques applicable to all types of physical systems. Prerequisites: 3251 and 3252. Computer 128.

5714 Electric Machinery (4 s.h.) Basic concepts of machinery, theory of a steady current, direct-current, ac-three-phase, synchronous, and induction machines; mechanical and electrical performance, and capital costing. Computer 128.

5715 Nuclear Science (4 s.h.) Foundation course deals with the interaction of man with the energy and nucler sciences; radiation, energy, and time considerations, nuclear isotope techniques; present and future uses, nuclear energy, technology, and its impact, nuclear fission, nuclear fusion, and related aspects of the nuclear sciences. Computer 128.

5714 Thermodynamics (4 s.h.) Basic concepts of thermal energy, refrigeration, identification and classification of principles of operation, and properties of working fluids of various types; ability to perform engineering applications. Advanced 143. Computer 128.

5718 Principles of Electronic Instrumentation (4 s.h.) Principles of operation of electronic and sensor-effect transducers (RTS), use of basic analog and digital design and analysis techniques. Use of various equipment and software for transducer amplification and data analysis. Computer 128 or 228.

5718A Analytical Mechanics (4 s.h.) Mechanics of deformable bodies, statics, statics, application to beams, columns, shafts, and pressure vessels and structural engineering, statics, kinematics, vibrations, control, and working loads. Prerequisites: 3717. Computer 228 or 229.

5718B Mechanics of Fluids and Transfer Processes (4 s.h.) Laws governing fluid and transport processes, laws of conservation, mass, and energy, thermodynamics, fluid flow, behavior and behavior flow phenomena, dimensions, concentration, and concentration boundary layer, engineering applications of fluid, measurement of fluid flow, and control of fluid flow and energy transport. Computer 228 or 229.

5721 Principles of Design I (4 s.h.) Emphasis in the first year: defining the identification, modeling, and analysis design problems using optimization principles, methodology, and computer-aided design. Prerequisites: 228 or 229, and 127.

5722 Principles of Design II (4 s.h.) Principles and analytical aspects of engineering design topics include probability, models, decision theory, estimation, project management, and optimization related to an emphasis on model construction, applications in engineering design, and technical report writing. Prerequisites: 3212 and 4013.

Biomedical Engineering

Otaiz: Keon Kim Professor: Richard A. Brand, Krahen B. Cartesian, Rover, S. Laken, Y. Young Liu, John R. Park, Waseem H. Associate professor: Thomas D. Brown, Steve M. Cullen, W. Kent, Donald J. Marton, and Daniel T. Degree offered: B.S.

The last two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have increasingly become involved with the increasing number of biomedical sciences, there has been a need for more people to become familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession.

Students who complete this program may pursue career opportunities in industries of medical device and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetic and orthotic devices, man-machine systems, and government (Veterans Administration, Environmental Protection Agency, Food and Drug Administration), or they may elect to continue their formal education in the engineering, medical, or legal professions. Several engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses that have been designed primarily for the biomedical engineering program are identified by the digit 1 in the second position of the course number prefix. Course descriptions are provided at the end of this section.

Undergraduate Program

The curriculum outlined below is built on the foundation provided by the College of Engineering core courses, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable the student to satisfy the entrance requirements of the Graduate College and, with the addition of a three-course sequence in organic chemistry, the College of Medicine.

Curriculum

Sophomore Year

First Semester
228-40 Matrix Algebra for Engineers 2 s.h.
228-41 Differential Equations for Engineers 3 s.h.
571 Dynamics 3 s.h.
5712 Linear Systems Analysis 3 s.h.
5715 Materials Science 3 s.h.
228-44 Biomedical Engineering 4 s.h.
5713 Behavioral and Social Sciences 3 s.h.
Total 16 s.h.

Second Semester
228-42 Vector Calculus for Engineers 4 s.h.
5712 Linear Systems Analysis 3 s.h.
5715 Materials Science 3 s.h.
228-43 Biomedical Engineering 4 s.h.
5713 Behavioral and Social Sciences 3 s.h.
Total 16 s.h.

Junior Year

First Semester
225-39 Probability and Statistics for Engineers 3 s.h.
5716 Thermodynamics 4 s.h.
5718 Principles of Electronic Instrumentation 4 s.h.
5719 Professional Seminar: Biomedical Engineering 0 s.h.
Total 17 s.h.
Graduate Program

The biomedical engineering faculty oversees students interested in pursing graduate study in biomedical engineering through other graduate programs, such as the graduate program in electrical and computer engineering, mechanical engineering, dentistry, and medicine. Research currently is being carried out in the areas of biomaterials, biomechanics, cardiovascular and biotissues, biostatistics, the physical and mechanical behavior of tissues treated as engineering materials, and the body's response to implant materials. Coupled with these emphases is a strong interest in the development and evaluation of artificial organs and other implantable devices and tissue-like models. Another area of interest is biomedical systems, including systems physiology and the use of computers in health-care delivery.

Special Facilities and Laboratories

Required Course Laboratories

There are two laboratories associated with two required undergraduate courses: Biomedical Materials I and Biomedical Measurements I.

- The biomechanics laboratory is equipped for investigating mechanical properties of biopolymers and the deformation of hard tissues and prostheses in biomechanics. This laboratory is also used for 51170 Biomaterials E, 51172 Polyurethane Materials, and 51174 Ceramic and Glass as Biomaterials.
- The biomechanical measurements laboratory is equipped for measuring biomechanical variables of clinical and physiological interest and for designing electronic instrumentation in biomedical engineering. This laboratory is also used for 51180 Biomedical Measurements II.

Research Facilities and Laboratories

Biomedical Materials Laboratory

This laboratory is equipped to test mechanical properties of biomaterials and thin sectioning of hard tissues and protheses for biodynamics.

Hemodynamics Laboratory

This laboratory is equipped to study cardiovascular fluid dynamics, particularly flow and valve problems and flow in the human aorta.

Applied Mechanics Laboratory

This laboratory is equipped to study the mechanics of the biomaterials and small space experiments under complex dynamic loading conditions.

Biomechanical Imaging and Computing Laboratory

This laboratory has an ATOMIC image processing system used to digitize anatomical studies, photograph, ARs, and CAT scan images with a resolution of 640 x 480 pixels and able to distinguish 256 colors.

Courses

5100M Cooperative Education Training

5101M Biomedical Engineering

5103M Biomedical Engineering

5104M Biomedical Engineering

5105M Biomedical Engineering

5106M Biomedical Engineering

5107M Biomedical Engineering

5108M Biomedical Engineering

5109M Biomedical Engineering

5110M Biomedical Engineering

5111M Biomedical Engineering

5112M Biomedical Engineering

5113M Biomedical Engineering

5114M Biomedical Engineering

5115M Biomedical Engineering

5116M Biomedical Engineering

5117M Biomedical Engineering

5118M Biomedical Engineering

5119M Biomedical Engineering
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 catalysts and reactor design, environmental contamination, particulate matter processing, application of analytical techniques, 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 reactions; 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 air-quality concerns and the control of volatile organic compounds and other hazardous pollutants.

Particulate Material Processing Sciences

Theoretical and experimental studies in particulate material processing science involve the study of particulate materials and their interactions with other materials. The emphasis is on the development of new techniques and methods for the control and manipulation of particulate materials.

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 in the Department of Chemical and Materials Engineering focuses on the development of new techniques and methods for obtaining a more fundamental understanding of the underlying physical phenomena and processes involved. The work is multidisciplinary, 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 classes may be used for no more than 4 semester hours.

Doctor of Philosophy

The Ph.D. degree is granted primarily in recognition of the candidate's achievement. 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 two to three years to complete the requirements. The candidate is expected to have completed three academic years of residence, or two years if he or she already holds a recognized master's degree. The minimum grade-point average of 3.5 is required to complete the degree.

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 also are accepted, depending on evaluation of their records. For the M.S. program, a grade-point average of at least 2.5 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 2.75 on the entire residence of credit hours if the student has less than 12 semester hours of graduate work. Conditional admission may be granted if the above requirements are not met and if approval is obtained from the chair of the chemical and materials engineering department. A grade-point average of at least 3.2 is required for continuation in the Ph.D. program.

Applications should take the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) Aptitude Test, and scores of the test should be submitted 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. Graduate students and graduate 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 metallographic preparation, including a barinder. A variety of metallographic testing instruments and hardness testing machines are available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, dilatometer in LIF kits, and crystallography packings.

Required Course Laboratories

Unit Operations Laboratory
This is primarily an instructional laboratory for senior undergraduate students. It involves experimentation in transport phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment, such as distillation columns interfaced with a microprocessor, wet air evaporator, shell-and-tube heat exchanger, jacketed kettle, packed columns for gas absorption, plate-and-frame filter presses, agitation stirrer, and a cabinet dryer. Other equipment includes stirred-tank reactors, packed-bed reactor, centrifugal pump, gas chromatograph, reboiler, mixing tank, and a variety of instrumentation for measuring flow, pressure, temperature, and level. Each small shop also is available to students for use under a technician's supervision.

Chemical Process Laboratory
This laboratory includes equipment for sampling, and controlling processing variables such as flow, level, and temperature. Other equipment includes an analog computer, strip chart recorders, two microcomputers, and pneumatic process controllers. The laboratory also may use of remote computer terminals for acquiring control systems.

Graduate Facilities and Laboratories

To support and develop research activities the department offers a wide variety of facilities and equipment, ranging from pilot plant research equipment within and available to the department is listed below.

Computer Facilities

The departmental computer facilities contain a variety of graphics terminals, printers, and microcomputers. The terminals connect to the University's high-speed Computing Center, which makes available these computers IBM 3033, Prime 850, Prime 750, 840 PS/20 and a VAX 11/780. They also provide access to the college's Computer-Aided Engineering Laboratory. The department is also connected to the Iowa Computer-Aided Engineering Network, which includes Apollo work stations augmented with Apple Macintosh 512K personal computers. In addition, the department has access to the University's central research facility in NIBL, where several central research facilities such as the Iowa Laser Facility, with a variety of laser equipment; the art-lab instrumentation, and the High Field Nuclear Magnetic Resonance Facility.

Materials Characterization Facilities

Facilities include a unique equipped laboratory for the characterization of powders and particulates. The laboratory contains a variety of size and morphology instrumentation including a Quantachrome BET Surface Area Analyzer, a Scirocco-Pyrometer for measuring powder density, a Dors/Scanning Electron Microscope, a Micrometrics Sedigraph, a T.G./D.E.A., and Coulter Counter particle counters and size, and a Shape Analyzer for particle size imaging for morphological and texture determination.

Other facilities include sampling devices, devices for characterizing bulk properties, various mixers, grinders, and string equipment, optical microscopes, scanning electron microscopes, an abrasion tester; measuring and pointing equipment: a lab scale balance, a belt and an electrostatic for the production of particles of specific size and shape. The laboratory also includes a fully controlled 2 liter environment chamber for the determination of dust explosibility and a Braun and Kier far-infrared acoustic analyzer. In addition, here is access to the University's Electron Probe Microanalysis and Electron Microscope facilities.

There also are facilities available to study microscopic materials. These include techniques and clean facilities to characterize crystal growth, sintering preparation, and etching techniques. In addition, the Hybrid Microelectronics Laboratory houses the electronic and computer engineering department provides capabilities in small-scale microelectronics chip and substrate manufacturing, including vacuum deposition, a darkroom, machine, photolithography apparatus, a variety of electronic test instruments.

Separation Science and Biochemical Facilities

A variety of equipment is available for the study of separation processes. These include an Acousto-DCC ultracentrifuge unit, a surface diffusion apparatus, equipment for filtration of custom membrane units, electrophoretic equipment, and continuous precipitation equipment. The laboratory is supported by several gas chromatographs, a Beckman HPLC, a General Electric Mass detector, an oxygen analyzer, Orion ion analyzer, a Perkin-Elmer UV-VIS spectrophotometer, and a variety of other analytical equipment. The department also has general purpose pilot plant equipment for the study of evaporation, distillation, and solvent extraction.

Facilities also include a 50 gallon fermentor, currently equipped with a Weighttronics digital balance and gas chromatograph and temperature and pH analyzers. An additional 1000 liter Chemax air-lift fermentor. Other equipment on campus supporting instrumentation-related equipment for the electrical and synthesizer: the Protein Structure Facility, which is equipped with an amino acid analyzer, an automated sequencer, a rotocap connector, stopped-flow spectrometers, and analytical ultracentrifuge, and a Fermentation Facility, equipped with an advanced cell sorter, and the Large Scale Fermentation Facility, equipped with a fully controlled and instrumented 10 liter and 100 liter fermentors.

Courses

Special Courses

52-080 Cooperative Education Training Assignment: Chemical Engineering 3 h

The cooperative education program is part of the Cooperative Education Program at the University of Iowa. The program is designed to provide qualified students with experience in the field of chemical engineering. Each student is required to complete a total of 21 semester hours. This course is designed to fulfill the cooperative education program and is a part of the 21 semester hours required. 45-446 Process Calculations 3 h

Solutions of industrial problems using computer-based methods and techniques, including the use of appropriate computer programs and software packages. The course is an introduction to the use of computers in chemical engineering. 59-435 Chemical Engineering Thermodynamics 3 h

A survey of the fundamental principles of thermodynamics and their application to chemical processes. The course is designed to provide students with a basic understanding of the principles of thermodynamics.
Civil and Environmental Engineering

Chairs: Jerold L. Schuber
Assistant Professors: Konstantinos P. Georgakopoulos, Richard N. Hanes, Mark D. Howard, Kenneth Lloyd, Takashi Hatanaka, Ralph E. Spence, Jr., Roger C. Spilker, Wille L. Walker
Degree: Ph.D.

Civil engineering is the oldest and one of the three largest fields of engineering. It traditionally has been concerned with facilities that are both large-scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, seaports, and even airports; large-scale structures and office buildings that provide enclosed working and living spaces; and environmental and hydraulic systems that provide clean water and air, including irrigation systems and distribution systems for municipal and industrial water supplies, waste water treatment plants, dams, reservoirs, and irrigation systems. Growth areas of civil and environmental engineering include infrastructure repair, construction management, computer-aided design, and hazardous waste management.

The continuing need for expertise in these areas accounts for the steady demand for civil engineers through both good and bad economic times. And the variety of tasks that this degree of civil engineer is qualified to perform ensures his or her capacity to adjust to shifting demands, thereby promoting career flexibility.

In planning and design, civil and environmental engineers work with architects, landscape architects, planners, environmental scientists, sociologists, lawyers, and other specialists as members of the design team. Some civil engineers work as engineering office managers. Others may be called upon to construct or supervise projects they have designed. Their field assignments, many of which are in remote and sometimes hazardous locations, are particularly appealing to many civil engineers.

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, hydraulic engineering, environmental engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester

22M:42 Vector Calculus for Engineers 3 s.h.
57:19 Dynamics 3 s.h.
57:11 Introduction to Elec-Elec 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.
57:22 Intermediate Engineering 3 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

Junior Year

First Semester

29:62 Intermediate Engineering Physics II 3 s.h.
57:21 Principles of Design I 3 s.h.
22S:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
54:31 Soil Mechanics 3 s.h.
53:34 Modern Structural Analysis 3 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
Total 15 s.h.

Second Semester

53:80 Computer-Aided Design I 3 s.h.
57:22 Principles of Design II 3 s.h.
53:37 Design of Steel Structures 3 s.h.
57:31 Principles of Hydraulics 2 s.h.
53:32 Principles of Hydrology 2 s.h.
53:80 Elements of Surveying 1 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.

Senior Year

First Semester

53:36 Reinforced Concrete 3 s.h.
53:62 Transportation Engineering 3 s.h.
53:79 Hydrology 3 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
Principles of Environmental Engineering 3 s.h.
*Humanities or social science elective 3 s.h.
Total 15 s.h.

Second Semester

53:84 Project Design and Management in Civil and Environmental Engineering 3 s.h.
53:85 Experiments in Civil and Environmental Engineering 2 s.h.
53:91 Professional Seminar: Civil Engineering 6 s.h.
Technical electives 9 s.h.
*Humanities or social science 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 advanced research. The principal areas of concentration in environmental engineering include astronomy, engineering: environmental, earth sciences, metals, 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 College 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 waste management.

Hydraulics and Water Resources

The hydraulic and water resources curricula are associated with the Iowa Institute of Hydraulic Research, a laboratory that is world renowned. The senior faculty members of the institute 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 of Business, Law, and Liberal Arts.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula may be directed towards design, analysis, research, or a combination of these. Special strengths exist in the areas of dependent 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. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours of credit. At least 6 semester hours of credit must be in the mathematical and basic sciences. As an applicant for the master's degree, it is expected that the candidate will have the equivalent of a 3.0 grade-point average at the University and a minimum grade-point average of 3.2 based upon previous graduate work. Students who have a grade-point average of 3.0 are invited to correspond regarding admission possibility.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for allMining of coarse grade work vary among the specialties.

All doctoral candidates are required to pass a written and oral comprehensive examination before admission to candidacy for the degree. This examination normally is taken when substantially all of the student's coursework 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 3.2 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 "College of 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.

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 assistants are available on a variety of research projects, as well as limited number of teaching assistants. Selection of recipients usually is based on scholastic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction

The freshman engineering course S-3 includes introduction to engineering includes an introduction to the Iowa Computer-Aided Engineering Network (ICA), which is described under "College Facilities." Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Apple's work station software. Students also visit the course Principles of Design. A make-up exercise of the course homework 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-classes 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, sewage characteristics, stress-strain properties, and strength of soils.

53.95 Experiments in Civil and Environmental Engineering

This laboratory course consists of experiments in the hydraulics, environmental, and structures area. It is offered at the Hydraulic Laboratory, for Environmental Engineering Laboratory, and the Materials Laboratory as a survey course with hands-on experimentation.

53.156 Principles of Environmental Engineering

The Environmental Engineering Laboratory and the Environmental Science Laboratory 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 a part of the Environmental Engineering Laboratory. Standard water and wastewater quality tests are conducted and bench-scale unit processes are operated and analyzed.

53.153 Limnology

The laboratory for limnology is a part of the Environmental Engineering Laboratory. Typical aquatic experiments are studied in the laboratory and several field exercises are conducted on area streams and lakes.

Graduate Facilities and Laboratories

Environmental Engineering and Science Laboratories

Research in environmental engineering is conducted in the department's Phillip F. Morgan Hydraulic Engineering Research Laboratory at the Iowa City Municipal Wastewater Treatment Plant, and in the Environmental Engineering Laboratory at the University's Water Treatment Plant. The Morgan laboratory is devoted to research activities in the wastewater
Environmental Engineering and Science

5.5.10 Principles of Environmental Engineering

5.5.11 Biophysical and Chemical Principles

5.5.12 Advanced Water Treatment Processes

5.5.13 Environmental Engineering

5.5.14 Hydraulics and Water Resources

5.5.15 Principles of Hydraulic Engineering

5.5.16 Principles of Hydrology

5.5.17 Hydraulic Engineering

5.5.18 Analysis of Hydraulic Structures

5.5.19 Design of Hydraulic Structures

5.5.20 Hydraulics and Water Resources
Electrical and Computer Engineering

53171 Theory and Practice of Hydraulic Modeling

2 a.h.

Theoretical bases for hydraulic models developed from physical modeling, numerical analysis, and mathematical models. Techniques of 2D and 3D boundary models of hydraulic structures. Flow, sediments, and surface fluctuations of modern reservoirs and data handling techniques. Prerequisite: 3371.

53173 Hydrology

2 a.h.

Water resources: economical analysis, water resources engineering, hydrology, infiltration, groundwater hydrology, rainfall-runoff relations, surface hydrology, storage problems, flood routing, frequency, intensity and duration study of annual storms, annual, and climatic water balance urban hydrology. Prerequisite: 53171.

53174 Water in the Dynamics Systems

2 a.h.

Application of basic engineering sciences, including principles of physics, chemistry, mechanics, energy, and climate, to the study of river systems, coastal regions, and groundwater. Survey of design, construction, and operation of water projects. Study of the aquatic environment and water supply, waste management systems, and flood control measures. Prerequisite: 53176.

53176 Coastal Hydrodynamics

2 a.h.

Wave, tidal, and current calculations; coastal structure, wave-mixed dynamics, salinity intrusions, and sediment transport in estuaries, beach processes, and estuarine models. Prerequisite: 53173.

53271 Hydraulic Transients

3 a.h.

Unsteady flow in closed conduits: method of characteristics, momentum and energy balance equations, transients in water distribution, transient calculations, surge analysis, hydraulic transient analysis on open channels. Prerequisites: 53174 and 53176.

53272 Environmental Dispersive Processes

3 a.h.

Review of classical diffusion theory, biogeochemical, trace metal, and vertical mixing in fine-aqueous systems, and dispersion in coarse-grained systems. Techniques selected from analysis techniques, mixing models, and numerical techniques that apply to environmental dispersion analysis. Prerequisite: 53173. Same as 53271.

53275 Computational Hydraulics

3 a.h.

Generalized and specialized one-dimensional and multidimensional models, numerical methods, and computational techniques, numerical solutions for one-dimensional and multidimensional problems, and application of numerical models to environmental problems. Prerequisite: 53173. Same as 53271.

53296 Strange Flow

3 a.h.

Flow of non-Newtonian, non-equilibrium, low and high Reynolds number flows. Euler’s equations. Prority diffusion: flow of non-Newtonian suspension, material conservation method; unsteady and unsteady-state boundary layer theory, similarity and boundary layer theory. Prerequisite: 53175. Same as 53271.

53297 Advanced Water Resources

3 a.h.

Analysis and design of hydraulic structures and reservoirs. Evaluation of projects, reservoirs, and water resources management. Reservoir design and analysis, reservoir range analysis, flood frequency, economic analysis, design, evaluation and optimization of reservoirs, and water resources management. Prerequisites: 53174 and 53175.

Graduate Seminars, Advanced Topics, and Research

51864 Essentials in Civil and Environmental Engineering

3 a.h.

For graduate students in civil engineering who have not been exposed to environmental engineering. Prerequisites: Graduate standing and permission of instructor.

51869 Graduate Seminar: Civil and Environmental Engineering

3 a.h.

Student presentations of recent research and developments in civil and environmental engineering. Topics of current interest. Prerequisite: Graduate standing.

51870 Contemporary Topics in Civil and Environmental Engineering

3-6 a.h.

New topics or areas of study not formally offered. Departments of Curriculum and Instruction, subject to availability. May be retaken for credit.

51899 Individual Investigation: Civil and Environmental Engineering

3-6 a.h.

Student investigations on civil and environmental engineering topics. May be retaken for credit. Prerequisites: Graduate standing and consent of faculty advisor.

51999 Research: Civil and Environmental Engineering, A.B.S. Thesis

3-6 a.h.

Experiential and/or analytical investigation of an approved topic for partial fulfillment of requirements for the A.B. degree in civil and environmental engineering. Prerequisite: Graduate standing and consent of faculty advisor.

52099 Research: Civil and Environmental Engineering, Ph.D. Dissertation

3-6 a.h.

Experiential and/or analytical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. degree in civil and environmental engineering. Prerequisite: consent of faculty advisor.

Electrical and Computer Engineering

52160 Graduate Seminar: Electrical and Computer Engineering

5 a.h.

Student presentations of recent research and developments in electrical and computer engineering. Topics of current interest. Prerequisite: Graduate standing and permission of instructor.

52199 Contemporary Topics in Electrical and Computer Engineering

5 a.h.

Presentation and discussion of recent advances and research in civil and environmental engineering. Topics of current interest. Prerequisite: Graduate standing.

52199 Individual Investigation: Electrical and Computer Engineering

5 a.h.

New topics or areas of study not formally offered. Departmental subject to availability. May be retaken for credit.

52299 Research: Electrical and Computer Engineering, A.B.S. Thesis

5 a.h.

Experiential and/or analytical investigation of an approved topic for partial fulfillment of requirements for the A.B. degree in civil and environmental engineering. Prerequisite: Graduate standing and consent of faculty advisor.

52381 Introduction to Computers in Electrical Engineering

3 a.h.

Same as 53176. Same as 53271.

Senior Year

First Semester

52629 Introduction to Engineering Physics I

3 a.h.

23259 Probability and Statistics for Engineering and Physical Science

3 a.h.

52629 Introduction to Engineering Design

3 a.h.

52699 Professional Seminar: Electrical Engineering

3 a.h.

Undergraduate Program

The Electrical and Computer Engineering Program provides a strong background in basic electrical and computer engineering subjects, physics, and mathematics, and allows for concentration in several areas through five technical elective courses usually taken in the senior year. A student can concentrate in one or more areas among courses in control, communication, electronics, and applied physics.

Curriculum

Sophomore Year

First Semester

51710 Dynamics

3 a.h.

212641 Differential Equations for Engineers

3 a.h.

51716 Thermodynamics I

4 a.h.

51713 Materials Science I

3 a.h.

51711 Introduction to Electrical Science

3 a.h.

Total

16 a.h.

Second Semester

52191 Intermediate Engineering Physics I

3 a.h.

221642 Vector Calculus for Engineers

3 a.h.

51712 Linear Systems Analysis

3 a.h.

51719 Principles of Electronic Instrumentation

4 a.h.

52193 Introduction to Computers in Electrical Engineering

3 a.h.

Total

16 a.h.

Junior Year

First Semester

52629 Intermediate Engineering Physics II

3 a.h.

23259 Probability and Statistics for Engineering and Physical Science

3 a.h.

55229 Introduction to Digital Design

3 a.h.

55429 Electronic Circuits

3 a.h.

55449 Signals and Systems

3 a.h.

5591 Professional Seminar: Electrical Engineering

3 a.h.

Electrical Engineering

52193 Introduction to Computers in Electrical Engineering

3 a.h.

52191 Intermediate Engineering Physics I

3 a.h.

52192 Intermediate Engineering Physics II

3 a.h.

52193 Introduction to Digital Design

3 a.h.

55229 Introduction to Digital Design

3 a.h.

55429 Electronic Circuits

3 a.h.

55449 Signals and Systems

3 a.h.

5591 Professional Seminar: Electrical Engineering

3 a.h.

Electrical Engineering

52193 Introduction to Computers in Electrical Engineering

3 a.h.

52191 Intermediate Engineering Physics I

3 a.h.

52192 Intermediate Engineering Physics II

3 a.h.

52193 Introduction to Digital Design

3 a.h.

55229 Introduction to Digital Design

3 a.h.

55429 Electronic Circuits

3 a.h.

55449 Signals and Systems

3 a.h.

5591 Professional Seminar: Electrical Engineering

3 a.h.

Electrical Engineering

52193 Introduction to Computers in Electrical Engineering

3 a.h.

52191 Intermediate Engineering Physics I

3 a.h.

52192 Intermediate Engineering Physics II

3 a.h.

52193 Introduction to Digital Design

3 a.h.

55229 Introduction to Digital Design

3 a.h.

55429 Electronic Circuits

3 a.h.

55449 Signals and Systems

3 a.h.

5591 Professional Seminar: Electrical Engineering

3 a.h.

Electrical Engineering

52193 Introduction to Computers in Electrical Engineering

3 a.h.

52191 Intermediate Engineering Physics I

3 a.h.
Senior Year

First Semester
55.12 Electrical Engineering Models and Devices 3 s.h.
55.82 Principles of Electrical Engineering Design II 2 s.h.
56.01 Professional Seminar: Electrical Engineering 6 s.h.
**Technical electives 6 s.h.
Humanities or social science electives 6 s.h.
Total 17 s.h.

Second Semester
56.46 Principles of Electrical Engineering Design III 3 s.h.
29.00 Modern Physics 3 s.h.
Technical Electives 3 s.h.
Humanities or social science elective 4 s.h.
Total 16 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.
55.120 Switching Theory 3 s.h.
55.137 Microcomputer-Based Systems 3 s.h.
55.138 Fault Tolerant Computing 3 s.h.
55.140 Elements of Thin-film electronics 3 s.h.
55.142 Introduction to VLSI Design 3 s.h.
55.143 Linear Integrated Electronics 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.
55.158 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.
55.176 Optical Signal Processing 3 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 non-thesis 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 a few basic guidelines imposed by the Graduate College and by the program. Close interdisciplinary ties 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 premise area 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 computer science researchers in both the Engineering and Van Allen Hall. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as noise and shocks. A plasma physics laboratory is available to support this activity. An electro-optic laser laboratory and an ultrasonic facility are used to conduct graduate research in the areas of optical/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 holography, 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 fault-tolerant computing, distributed systems, coding, VLSI design, and non-standard computer architectures. This work is supported by the availability of a computer network, minicomputer facilities, and VLSI design software. Current projects include validation of ultra-reliable computing systems, designs of survivable computer systems, fault diagnosis in modular microcomputer systems, and design of easily testable, very large scale integrated circuits. Close contacts with other departments such as the Department of Computer Science are maintained.

Signal and Image-Processing

The cardiovascular signal and image processing, signal processing associated with speech and hearing, estimation theory, and adaptive signal processing currently constitute the core of this area. Collaborative efforts involve the departments of biomedical engineering, physics, and the College of Medicine. A digital signal processing laboratory and a cardiovascular simulation laboratory (both located at the cardiovascular center in the University Health Center), are available to support this research. Recent problems include image processing, detection of cardiac motion, recognition and spectral analysis of speech, detection of E.G.G. edge detection, array signal processing with applications in sonarology, and the 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 being done in estimation, identification, and optimal controls for linear and non-linear dynamic systems. A model control systems research program supports this effort. Open 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 36 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. M.S. semester hour requirements do not include courses required for 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 in 55.199. 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 their 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:

1. Selection of a program adviser and filing of a tentative plan of study with the program during the first year.
2. At least 72 semester hours of credit in a coherent program acceptable to the adviser and approved by the graduate
Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

Electrical and computer engineering provides core instruction for the college in 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 teaching laboratory instrumentation. The electronics laboratory facilities are equipped with oscilloscopes, signal generators, analog and digital breadboards, and a variety of measuring instruments.

Required and Elective Course Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories plus special laboratories for microcomputers, interfaces, 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 workstation--two of which are color, a PDP 11/45, a VAX 275 series, and several Macintosh personal computers. Over thirty dumpers and graphic 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 the production of high quality hand copies.

Courses

51008 Cooperative Education Training Assignment: Electrical Engineering 4 a. h.

Electrical engineering systems participating in the Cooperative Education Program register in this course during work assignment periods. Requires: permission of instructor. Prerequisites: Either 3 credit hours (100 level) in computer science, or 54016 Principles of Electrical Engineering Design I. Registration approval of the Cooperative Education office.

54016 Principles of Electrical Engineering Design I 3 a. h.

Design projects to provide students with practical experience in the design and implementation of electronic and microcomputer systems. Advanced applications, and experimental design. Prerequisites: MATH 113 and 114.

54016 Principles of Electrical Engineering Design II 3 a. h.

Design projects requiring integration of subject matter from other required 100 level courses. Prerequisites: 54016. Complementary: 54036, 54050, and 54105.

56016 Principles of Electrical Engineering Design III 1 a. h.

Preliminary design. Individual or team projects of student choice, requires demonstration of the completed project and a formal engineering report. Prerequisite: 54016. 40200 5 a. h.

58016 Professional Internship/Electrical Engineering 5 a. h.

Preliminary reports in electrical engineering practice for students enrolled in Electrical Engineering Practice Lab (58096). Prerequisites: ECE 54380 or 54580, 54016, and sufficient background in electrical engineering. May be repeated. Prerequisite: approval of the department.

58096 Independent Investigations: Electrical Engineering 1-4 a. h.

Independent projects for electrical engineering undergraduates such as a laboratory investigation, engineering design project, analysis and innovation of an engineering system, computer software development, research, etc. Prerequisites: Consent of a sponsoring faculty advisor.

Digital Systems and Computers

52100 Introduction to Computers in Electrical Engineering 3 a. h.

Introductions to the digital domain, fundamentals of computer science, logical and sequential circuits and logic gates, Boolean algebra, computer architecture, computer organization, and instruction sets. Prerequisites: 57190 and 57190.

52200 Introduction to Digital Design 3 a. h.

Part 1: Design and analysis of digital switching circuits; combinational logic, sequential circuits and state machines, digital design, computer organization, programming languages, methodology development and design verification. Prerequisites: 52100. 52300 and 52300.

52100 Introduction to Software Design 3 a. h.

Introduction to software engineering. Part 1: Object-oriented programming languages; object-oriented programming; software design, methods, and design patterns; project management. Prerequisites: 52100. 52300.

51110 Switching Theory 3 a. h.

Modern switching theory including network of logic circuits, logic arrays, means of fault testing and design, design techniques to improve testability, design automation, design techniques, testing, design and switching theory. Prerequisites: 50016 and 52100.

51210 Introduction to Microprocessors 3 a. h.

Introduction to microprocessors and microcontrollers. Microcontroller architecture, programming, assembly language programming, commonly used applications with microprocessors. Laboratories using home experiment kits, lab료. Prerequisites: 57190 and 57190.

51200 Computer Organization 3 a. h.

The behavior, circuit implementation, and operation of computer systems, including central processing units, memories, storage, control, control and data transfer units, instruction sets, instruction pipelines, and microprogramming with microprocessors, interrupts and I/O operations, operating system, and hardware requirements for real-time applications. Prerequisites: 52100 and 52300.

51200 Computer Communication 3 a. h.

Computer communication, IBM 360 model, network topologies, physical networks, circuit analysis, error control, protocol, network protocols, digital switching networks, and data communications. Prerequisites: 51210 and 52100. 51210 and 52100.

51200 Microcomputer-Based Systems 3 a. h.

Design of microcomputer control systems for manufacturing and support circuits, interfacing machine and assembly language computer, interfacing microprocessors and microcomputers to machine design projects. Prerequisites: 51200 and 51200.

51200 Fault Tolerant Computing 3 a. h.

Logic strategies for fault, fault detection is combinational and sequential circuits, logic design techniques for fault detection and correction, redundant memories and systems. Prerequisites: 51210 and 51210.

51230 Advanced Switching Theory 3 a. h.

Advanced switching theory for switching and logic circuit design. Includes the theory of combinational and sequential circuits, finite state machines, and state space complexity. Prerequisites: 51210 and 51210.
Signal Processing

4.5.40 Electronic Circuits
4.5.41 Transistor Circuits
4.5.42 Signal and System
4.5.43 Filters and Waveform Synthesis
4.5.44 Feedback
4.5.45 Control Systems

Waves and Materials

5.10 Electromagnetic Theory
5.11 Waves and Materials

Graduate Seminar, Advanced Topics, and Research

5.10 Graduation in Electrical and Computer Engineering

5.10.03 Advanced Computer Organizations
5.10.02 Advanced Digital Signal Processing
5.10.01 Control Systems Theory
5.10.00 Communications
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. Laureates of positions for which a background of this type is advantageous are employed by public sector agencies, utilities, economic development groups, and developers. Public works employees, or corporate long-range planning departments. For more information see "Urban and Regional Planning" in the "Liberal Arts" section of the Catalog or the earlier section titled "Combined B.S. in Engineering-M.S. Planning Degree Program."

Joint Engineering/M.B.A. Program with the College of Business Administration

The colleges of Business Administration and Engineering have initiated a program that allows superior undergraduate students to begin course work required for a master's degree in business administration while completing the requirements for an undergraduate degree in engineering. The course of work chosen by the two disciplines allows the student to prepare for positions requiring both technical and managerial skills. The student can complete both programs in the years. For more information see the "College of Business Administration" section of the Catalog and the earlier section titled "Combined College of Engineering-M.B.A. Program."

Curriculum

Sophomore Year

First Semester

2DM 41: Differential Equations for Engineers 3 s.h.
5T 16: Thermodynamics I 4 s.h.
5T 11: Introduction to Electrical Science 3 s.h.
5T 12: Materials Science 3 s.h.
5T 10: Dynamics 3 s.h.
Total 16 s.h.

Second Semester

2DM 42: Vector Calculus for Engineers 3 s.h.
5T 12: Linear Systems Analysis 3 s.h.
5T 19: Mechanics of Deformable Bodies 3 s.h.
5T 36: Principles of Electronic Instrumentation 3 s.h.
5T 41: Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year

First Semester

2253: Probability and Statistics for Engineering and Physical Sciences 3 s.h.
2942: Intermediate Engineering Physics II 3 s.h.
5T 20: Mechanics of Fluids and Transfer Processes 4 s.h.
5T 21: Principles of Design I 3 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester

2543: Modern Physics 3 s.h.
5T 22: Principles of Design II 3 s.h.
5T 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.
Electrical or mechanical 3 s.h.
*Humanities or social science elective 3 s.h.
Total 18 s.h.

Second Semester

Design course 3 s.h.
Technical elective 3 s.h.
*Humanities or social science elective 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.
order to accomplish these varying activities, the industrial and management engineer is skilled in mathematics, physical sciences, management, and human relations, as well as in computer system, 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 unusually in an area of choice.

The industrial and management engineer has many opportunities for employment service in industrial, governmental, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. The industrial and management engineering major position as a consultant in management or may participate directly in management decisions. Representative jobs include industrial engineer, system analyst, quality engineer, operations research analyst, internal consultant, human factors engineer, supervisor, or manager. The industrial and management engineering 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 specialization in specific areas such as management, production, operations research, reliability, human factors engineering, and information systems.

Curriculum

Sophomore Year
First Semester
5710 Dynamics 3 s.h.
6711 Introduction to Electrical Science 3 s.h.
5714 Engineering Economy 3 s.h.
5712 Maternal Science 3 s.h.
225M1 Differential Equations for Engineers 3 s.h.
Total 15 s.h.
Second Semester
5712 Linear Systems Analysis 3 s.h.
5716 Thermodynamics I 3 s.h.
225M2 Vector Calculus for Engineers 3 s.h.
313 General Psychology 3 s.h.
381 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year
First Semester
5619 Professional Seminar: Industrial Engineering 0 s.h.
5631 Manufacturing Processes 3 s.h.
5721 Principles of Design I 3 s.h.
225M2 Probability and Statistics for Engineering and the Physical Sciences 3 s.h.
225M2 Intermediate Engineering Physics II 3 s.h.
56102 Human Factors engineering ***Economics elective 3 s.h.
Total 18 s.h.
Second Semester
5619 Professional Seminar: Industrial Engineering 0 s.h.
56131 Manufacturing Systems 3 s.h.
56140 Design of Work Methods 3 s.h.
56166 Production Systems 3 s.h.
5718 Principles of Electronic Instrumentation 4 s.h.
5722 Principles of Design II 3 s.h.
Total 16 s.h.

Senior Year
First Semester
5619 Professional Seminar: Industrial Engineering 0 s.h.
56150 Information Systems Design 3 s.h.
515156 Psychology in Management 3 s.h.
56160 Operations Research Design 3 s.h.
56182 Quality Control and Statistical Techniques 3 s.h.
56173 Statistical Operations Research 3 s.h.
***Technical elective 6 s.h.
Total 16 s.h.

Graduate Programs

Further 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 flexible; the goal is academic excellence.

There are five principal areas of academic focus in the graduate program in industrial and management engineering: manufacturing, human factors engineering/psychology, information and management engineering, quality and production control, and research and applied statistics.

Manufacturing courses, offered by the 50 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 psychosocial, physiological, and sociological sciences to problems in manufacturing and service systems. These problems concern fitting the job to the people who perform the jobs within the organization as well as managing and motivating people.

Courses in the 60 series cover these topics.

Information and management engineering studies concentrate on a computer, computer-aided design and programming systems, software design, administration, and engineering economics, as covered by courses in the 51 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 systems. Various methodologies in this area
include mathematical programming, random optimization, statistical analysis, and digital systems simulation. Courses in the 74 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 centers of feasible manufacturing systems, design, optimum control of processing paths, adaptive manufacturing control, parameterized 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 task statistics with cognitive tasks, and the effects 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 problems solving, and 4-techniques of ergonomic data collection and analysis.

Some current research in information and management engineering consists of investigating the effects of visual and auditory information, health risk assessment for medical resource allocation, economics of parallel processing, entrepreneurship, governmental risk analysis, and methods of identifying accident causation through incidence data, strategic management, and economic risk analysis. Quality and production control research is currently focused on computer-aided layout and scheduling, materials handling systems, location and allocation of automatic inspection, on-line expert systems, and on-line production inventories. At the inventory record accuracy-assurance procedures.

Ongoing research in operations research and decision analysis is directed to finding 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 toward developing the capabilities of computer graphics.

Master of Science

Two M.S. programs are available; a thesis and a nonthesis program. Students considering an M.S. degree admission to a Ph.D. program should select the thesis option. The M.S. thesis option requires a minimum of 30 semester hours of course work in 100- or 200-level courses, including at least 8 semester hours of research. Students who elect the nonthesis option must complete a maximum of 30 semester hours of course work at the 100 or 200 level, including at least 3 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, a faculty committee, and approved by the industrial and management engineering program chair and the Graduate College dean.

Entrance students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in advanced 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 coursework may be required for those 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 for eligibility to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. It may 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. At least 24 hours of the above lower limit are specified by the student's advisor committee. Part of the Ph.D. study is discussed. There is no foreign language requirement or special requirement for research techniques.

Admission to the Ph.D. degree candidacy requires a minimum grade-point average of 3.25 on all graduate course work taken at The University of Iowa and the demonstration of a capacity for independent achievement. Upon completing the preliminary work, specified by his or her advisor and advisory committee, the student is recommended to the comprehensive examination, which includes both written and oral parts. Part of this examination usually will 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 the comprehensive examination, the student is approved 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 3.75 and an acceptable score on the Graduate Record Examination (GRE) Aptitude Test (typically, at least 400 verbal, 650 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may be considered for conditional admission with a lower 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 admissions 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. Admissions 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 M.S. program. All admission requirements for the program are approved by the faculty as a committee of the whole.

Financial Aid

A number of one-quarter and one-half time graduate teaching assistantships are available. Awards are based on the student's academic record and an assessment of the student's potential contributions to the research and teaching goals of the program. The student 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 centers coordinated by class departments, see this subsection for each of the other engineering departments.

Required and Elective Course Content

Industrial and management engineering occupies the north wing of the fourth floor
Courses

Special Courses

54600 Cooperative Education Training Assignment: Industrial Engineering 3.6 b.

Industrial engineering students participate in the Cooperative Education Program registrants in this course. They are assigned minimum stipends of $900/week at a minimum of 34 hours per week. Typical experience with a minimum of 32 hours per week. Prerequisite: admission to the Cooperative Education Program and approval of the instructor.

56091 Instrumentation: Industrial Engineering 0.6 b.

Prerequisite: Principles of industrial engineering mechanics. Focus on the design, construction, and operation of industrial instruments. Evaluation of instrument performance, reliability, and cost. Prerequisite: consent of department advisor.

56098 Industrial Investigation (Industrial Engineering 1)

Industrial Investigation introduces students to the field of industrial engineering by providing an understanding of the design, implementation, and evaluation of industrial systems. Prerequisite: consent of department advisor.

Manufacturing

52625 Manufacturing Processes 3.0 b.

Analysis of manufacturing processes, including casting, forging, extrusion, forming, rolling, stamping, machining, welding, and surface treatment. Prerequisite: consent of department advisor.

52627 Manufacturing Systems 3.0 b.

Analysis of manufacturing systems, including computer-aided design, computer-aided manufacturing, and automation. Prerequisite: consent of department advisor.

52632 Introduction to Industrial Robotics 3.0 b.

Introduction to the use of robots in industrial settings. Design and operation of robots, including selection of robots, programming, and testing. Prerequisite: consent of department advisor.

52637 Computer-Intensive Manufacturing 3.0 b.

Analysis of computer-integrated manufacturing processes, including computer-aided design and computer-aided manufacturing. Prerequisite: consent of department advisor.

54180 Human Factors-Ergonomics 3.0 b.

Studies of human factors and the design of systems. Topics include human factors, human factors, human factors, and human factors. Prerequisite: consent of department advisor.

54181 Advanced Human Factors Engineering 3.0 b.

Studies of human factors and the design of systems. Topics include human factors, human factors, human factors, and human factors. Prerequisite: consent of department advisor.

54182 Psychology in Management 3.0 b.

Studies of human factors and the design of systems. Topics include human factors, human factors, human factors, and human factors. Prerequisite: consent of department advisor.

Information and Engineering Management

56090 Information System Design 3.0 b.

Design and implementation of information systems, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

56091 Microcomputer Applications 3.0 b.

Design and implementation of information systems, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

56092 Information Management 3.0 b.

Analysis of information management systems, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

56093 Information Technology 3.0 b.

Analysis of information technology systems, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

56094 Advanced Human Factors Psychology 3.0 b.

Analysis of human factors psychology, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

56095 Advanced Managerial Psychology 3.0 b.

Analysis of human factors psychology, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

Quality and Production Control

52010 Operational System Design 3.0 b.

Studies of human factors and the design of systems. Topics include human factors, human factors, human factors, and human factors. Prerequisite: consent of department advisor.

54182 Quality Control and Engineering 3.0 b.

Introduction to quality control and engineering systems, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.

54183 Reliability Theory and Practice 3.0 b.

Introduction to quality control and engineering systems, including computer-aided design, computer-aided manufacturing, and computer-aided design. Prerequisite: consent of department advisor.
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 computational methods used in energy conversion equipment. Areas of concentration include cycle analysis, 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 optimal design, structural optimization, software development, control systems, and materials behavior (fracture, fracture mechanics, etc.).

Biomechanics and Biomaterials
The graduate program in biomechanics is designed to provide the student with a strong background in the 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 fundamental principles of all experimental techniques used in the design and development of biomaterials.

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 nonthesis program. A thesis program may include 6 semester hours in thesis research. After admission to a graduate degree program, the student should visit the mechanical engineering faculty and find an academic advisor during the first semester. All graduate students are required to attend 5490 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 30 semester hours of graduate work and to be successful in the final examination administered by the committee. The requirements for the M.S. degree may be completed within a calendar year for a full-time student. However, students with at least one calendar year to complete the degree.

Doctor of Philosophy
Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit—including research for the dissertation—beyond the baccalaureate degree. All graduate students are required to attend 5490 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 3.25 on all graduate work done at The University of Iowa. All students in the doctoral programs are required to take the qualifying examination during their first year in the program and to complete 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 committees. The comprehensive examination must be completed within 24 months from the time of starting course work for the Ph.D. degree. During this window, oral examinations, the student is examined on the course work relevant to 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 successfully 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 the master's degree to be eligible for assistantships and for students 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 2.50 at the time of enrollment are 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 the decision to admit a student. Prospective Ph.D. objective who enroll with 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 student is made by the student's committee and the department chair. After the student is made by the student's committee and the department chair. After the student is made by the student's committee and the department chair. After the student is made by the student's committee and the department chair. 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58.223 Advanced Mechanical Design
3 a.h.
Advanced topics in mechanical systems design and analysis. Design optimization. Prerequisite: 58.122.

58.225 Computational Methods in Dynamics
3 a.h.
Computational methods for simulation and optimization of systems of rigid and flexible bodies. Time-invariant and time-variant systems. Prerequisites: 58.125 and 58.151.

58.254 Energy Principles in Structural Mechanics
3 a.h.

52.255 Solid Mechanics II
3 a.h.
Plane theory of elasticity, stress around a crack tip; three-dimensional elasticity; torsion and bending of shafts; shear deformations; plate bending. Prerequisites: 52.254. Same as 52.255.

50.257 Theory of Viscoplasticity
3 a.h.
Linear theory of viscoplasticity; viscoplastic materials. Evolutionary and quasistatic plasticity; constitutive equations and constitutive relations. Applications to dynamic and static problems. Prerequisites: 50.120. Same as 50.257.

50.259 Continuum Mechanics and Plasticity
3 a.h.
Same as 50.249.

Biomechanics and Biomaterials
50.170 Composite Materials
Same as 51.177.
50.171 Advanced Biomechanics
Same as 51.171.

Graduate Seminars, Advanced Topics, and Research
50.190 Endings in Mechanical Engineering
4 a.h.
For graduate students with overlapping majors who need credit in undergraduate engineering courses that may be exempted. Prerequisite: Graduate standing.

50.195 Graduate Seminar: Mechanical Engineering
4 a.h.
Presentations and discussions of recent advances and research in mechanical engineering by guest speakers, faculty, and students. Prerequisites: senior or graduate standing.

50.195 Contemporary Topics in Mechanical Engineering
4 a.h.
May topics in fluid and thermal sciences and computer science be presented in the fall, spring, and fall. Prerequisite: Graduate standing.

50.197 Individual Inquiry: Mechanical Engineering
4 a.h.
Individual inquiry for mechanical engineering graduate students, such as laboratory study, computer design project, analysis and development of an engineering system, computer software development, and research. Prerequisites: graduate standing and consent of advisor.

50.199 Research: Mechanical Engineering
M.S. Thesis
4 a.h.
Experimental/design/analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. degree with thesis in mechanical engineering. Prerequisites: graduate standing and consent of advisor.

50.299 Research: Mechanical Engineering
Ph.D. Dissertation
4 a.h.
Experimental/design/analytical investigation of an approved topic for partial fulfillment of the requirements for the Ph.D. degree in mechanical engineering. Prerequisites: consent of advisor.
Graduate teaching assistant

Dean: Diane C. Springer
Dean for Advanced Studies: Ronald W. Schultz
Associate deans: James P. Marchen, Charles M.
Graduate Examiners: Cass Cox
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fifth of its enrolment 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 scholarships, fellowships, and research grants, 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 13-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.), 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.
- Anatomy—M.S., 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.*
- Classics—M.A.*, Ph.D.
- Communication Studies—M.A.*, Ph.D.
- Community Dentistry and Dental Public Health—M.S.
- Comparative Law—M.CL.*
- Comparative Literature—M.A.*
- Computer Science—M.S., Ph.D.
- Criminal Justice and Corrections—M.A.*
- Dental Hygiene—M.S.
- Economics—M.A.*, Ph.D.
- Education—M.A.*, M.A.T.*, Ed.S.*, Ph.D.
- Electrical and Computer Engineering—M.S.*, Ph.D.
- Endodontics—M.S.
- English—M.A.*, M.F.A., Ph.D.
- Family and Consumer Sciences—M.S.
- French—M.A.*, Ph.D.
- Genetics—Ph.D.
- Geography—M.A.*, Ph.D.
- Geology—M.S.*, Ph.D.
- German—M.A.*, Ph.D.
- Greek—M.A.*
- History—M.A.*, Ph.D.
- Home Economics—M.A.*, 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.
- Neurosciences—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.
- Recreation Education—M.A.*
- Religion—M.A.*, Ph.D.
- Removable Prosthodontics—M.S.
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 (CICS) coordinates and supports interdisciplinary international studies at The University of Iowa. Founded as a faculty committee in mid-1981, CICS was recognized by the Board of Regents of Iowa in April 1984 as an academic center. In 1985, CICS 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, CICS serves area state, the region, and the nation by making available the human and bibliographic resources of the University through public lectures, institutional programs, and research services.

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. CICS works closely with the Office of International Education and Services, and both organizations are linked administratively to the vice president for educational development and research.

Four of the seven progams in CICS combine research with international scholarship and undergraduate instructional programs: African Studies, Asian Civilizations, Latin American Studies, and Global Studies. For further details, see the separate 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 and Informational Studies are also involved.

The Center supports international studies by funding more than 60 public lectures and seminars yearly, by providing administrative facilities to grant applicants, and by furnishing office space in the Jefferson Building, where students and faculty meet to hold classes and seminars. CICS cooperates with the Iowa City Foreign Language Council and other community organizations in providing speakers. CICS receives numerous foreign periodicals and newspapers, which are maintained in a small library in the Jefferson Building.

Evolutionary Ecology and Behavior

Program co-chair: Stephen Hearn, Henry W. and Bessie M. Finkbeiner Professor (Agricultural and Biological Sciences), Department of Zoology, 1325 Natural History Building, 502-319-5970. Assistant professor: Simon Heidich, 1425 Natural History Building, 502-319-5974.

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, population demography, and molecular ecology. There is real and strong emphasis on balance between controlled experimentation and field observation. The laboratory research may include controlled breeding experiments in which heritability, gene-environment interactions, and genetic correlation of neurophysiological and behavioral traits are studied. Field and laboratory research includes the study of undisturbed primate, mammal, and lizards species, and population dynamics.

Opportunities for field research are provided locally by the Macfarlane Nature Recreation Area just outside Iowa City, with lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji, with years of laboratory facilities, including 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, South America, the Great Smoky Mountains, the Mahave Desert, the American Rocky Mountains, and the Florida Keys. The Smithsonian Institution Laboratory on Bono 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, which sponsors research with the University of the Andes in Merida, Venezuela.
Joint Programs within the Graduate College
Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the appropriate sections of this Catalog or further information. Established joint programs include:
Business Administration/Librarian 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 Education, Research, and Development, which has an interlocking relationship with the Graduate College. For further information, see "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 VII. 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 assistant; assistant also are eligible for tuition scholarships; nonresident assistants (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 many 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 many 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 $4,500 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 graduate student body in matters affecting their 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 I. 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-sommer or May 1 for summer session. The Graduate College determines the general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination

All applicants prior to consideration for admission shall take the General (Appliance) Test of 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 the student’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 those in addition to the General (Appliance) Test. Inquiries about the General (Appliance) Test may be directed to University Evaluation and Examination Service, and inquiries about the requirements of the Subject (Advanced) Test should be addressed to the executive officer of the department in which the applicant is interested.

C. English for Foreign Students

Prior to consideration for admission, foreign students applicants whose native language is other than English must take and pass 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 Quebec, 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 an accredited college or university 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 who have not passed 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. Students who have taken the TOEFL and have received a grade of 5 (5.0) or better are considered to have met the English proficiency requirement.

D. Early Admission

A student who is within four semesters 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 admission.

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 X, Master’s Degree." Section XI, "Two-Year Degrees," and "Section XII, Doctor’s Degrees.")

F. Department 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 for which he or she intends to pursue. The only exceptions to this regulation are the limited 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 he or she is assigned. 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 categories:

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 to prove their ability to do graduate work by taking the GRE or other standardized test 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 his or her education. (See minimum grade-point requirements, "Section IX." The student on conditional status must achieve regular status within two sessions of registration in the Graduate College. A student’s grade-point average of at least 2.5 (3.0 for doctoral programs) is required by the major department, or be dismissed.

3. Special—Students with a valid bachelor’s degree or degree at least a 2.5 grade-point average who are not planning to be considered for a graduate degree or certificate. Registration as a special student is allowed for only one semester or 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
H. Minimum Requirements for Admission

Graduates of any college or university accredited by the appropriate regional associations may be admitted to the Graduate College if their academic records meet the required standards. For nondoctoral students, a minimum grade-point average of 3.3 is required for admission to conditional status. A minimum of 2.5 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate semester hours, the grade-point average is computed upon the undergraduate and graduate work completed in cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a point to be designated by the Graduate College dean. No, or her papers shall be forwarded to the department concerned for examination and decision.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.0 on the graduate work. Students with less than 12 semester hours of graduate work, a minimum grade-point average of 3.7 is required on the entire record of collegiate work.

Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the Graduate College as a whole. Information concerning departmental or program requirements may be obtained directly from the executive of the department.

For State Board of Regents' formal admission regulations see the "Administrative Code: Board of Regents" section of the Catalog.

I. Admission of Faculty Members to Graduate Study

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at The University of Iowa may be admitted as special students. (See "Section G above.") A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter a departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. Such work must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued, and the Graduate Council.

J. Readmission

Students who are admitted and enrolled 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 application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reaplication.

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. (Full-credit is required of a semester as a condition of their appointment.) One-fourth-time and one-third-time appointees are permitted to register for a maximum of 15 semester hours (nine per semester and eight semester hours during the eight-week summer session.

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 Courses as carrying zero semester hour credits.

C. Changes in Announced Credit

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, 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 9 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. Three- and three-quarter-time appointees may register for not more than 12 semester hours during a semester or six 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 three 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 should not exceed the 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 for 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 residency credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section III."

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 X.D.") and theses and dissertations for graduate credit may be required of students on campus for the master's and doctoral degree.

5. Residence graduate credit from another
L. Dropping of Courses

All graduate students who drop courses after the deadline stated in the dean of the Graduate College for each semester and published in the registrar shall receive the grade of F unless the student requests that his name be placed on the dean's list. A student's record is closed 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 on his own campus. Special course offerings, research opportunities, unique libraries, and library collections.

B. Procedure

1. A CIC Traveling Scholar first must be recommended by his or her graduate advisor, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.

2. After agreement by the student's adviser and the faculty member of the host institution, graduate dean at both institutions will be notified by the adviser and the president of the host institution.

3. A CIC Traveling Scholar will be registered at the host university, and fees will be collected by that institution. The student registers for DE0000 CIC Scholar at The University of Iowa.

4. Credit for the work taken will be recorded at the home university.

5. Issuing additional information should inquire at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally begin their visits to the host institution in the fall term and must complete their work at the host institution in one academic year. The student must successfully complete the research and educational requirements.

Section IV. Academic Standing, Probation, and Dismissal

A. Nondoctoral Students

A student, whether on conditional status, shall be placed on probation if, after completing eight more semester hours of graduate work at this University, he or she has not made adequate progress toward the degree. Normally, the student shall be placed on probation if, after completing eight more semester hours of graduate work, he or she has a cumulative grade-point average below 3.0. After completing eight more semester hours, the student's cumulative grade-point average shall determine the student's probation status. If it is determined that the student is not making adequate progress toward the degree, the student shall be dismissed from the program and denied permission to register. If the student is not making adequate progress, the student shall be dismissed from the program. After completing eight more semester hours of graduate work, the student shall be placed on probation if the student has not maintained a cumulative grade-point average of 3.0 or better. If the student does not maintain a cumulative grade-point average of 3.0, the student shall be dismissed from the program.
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—poor, F—failed, I—incomplete, W—withdrawn without diciplinary action, and U—unsatisfactory.
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, the satisfactory/unsatisfactory grades may be applied. (See next paragraph, “F.”) Students who receive the mark of I must remove 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 Fs 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 Dean for each session and printed in the academic calendar. Courses may not be repeated to remove incomplete, removal of an I in place of another grade 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 grade of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for no more than one session 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 clearly 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 advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing 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 absolve 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 Council to allow students qualifying in one area to register in courses in another area within 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 Assignments

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 for the required grade point average of at least 3.0; (b) a G.R.E. score of 500 or above, a score 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 to the Graduate College by the appropriate departmental 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. Fellows must be registered as full-time students. The primary purpose of the award is to permit an advanced student to complete his/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 Council.

C. Faculty Research Assistantships
Faculty research assistantships are awarded to qualified graduate students and are two purposes: to provide research service to professional members of the academic staff and to provide apprenticeship experience for graduate students who are in training in research. Not more than 40 hours of service per week are required of a full-time assistant. Other part-time service is scaled in proportion, and a limited academic stipend is permitted (see "Section III.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 amounts of service rendered. Faculty research assistants appointed by the Graduate College pay their own fees. 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. Applications should be made on the form provided by the Graduate College, and should be submitted by recommendations and/or a letter summarizing 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 these objectives, graduate students who show exceptional promise as teachers are selected for graduate assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships
Scholarships, fellowships, and research assistantships on the Graduate College budget must be registered as regular students in good standing in the University. Appointments will be terminated when registration and/or studies cease to be maintained. In no instance may a student be permitted or required to hold such appointment until after approval for admission to the Graduate College by the Director 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 Graduate College, Dean, or through the Department of Graduate Research. Other arrangements are made through the Office of the Graduate College, Dean, or through the Department of Graduate Research.

H. Credit
No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or faculty research assistant.

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 projects, 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 in which the degree will be conferred. The student must have the application signed by his or her advisor. 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 must register for the amount in which the degree 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 the various departments. Doctoral candidates who have completed all work except the final examination may register for the comprehensive examination in the "Section XIL" in such session as is appropriate. Master's candidates who have completed all work except the final examination may register for 0.00 for Master's Final Examination at the fee equivalent to the "comprehensive examination" 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 defense) for a graduate degree while enrolled in the Independent Study Session may receive their degrees in the following specific without additional registration.

Section X. Master's Degrees
A. Kind of Degree
Master's programs require a minimum of 36 semester hours for the Master of Arts degree. Master of Science degree. Master of Business Administration degree. Master of Comparative Law, Master of Arts in Teaching degree. Master of Science degrees. Master of Science 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. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also Section V.D. Departmental Regulations and Dissemination of Information.)

C. Major and Related Fields
The plan of study required provides for reasonable concentration in the major field of interest and subject to the approval of the graduate faculties, 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 electives may be taken toward fulfillment of this 24-hour residence requirement (see "Section I. C. Credit Registration") in addition to regular on-campus registration. However, all required electives hours on campus are required, except for those departmental programs which require sufficient interaction between the student and the graduate faculty and have received approval from the Graduate College.

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 baccalaureate degree, 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 master's major field of study in the Graduate College and will be approved as a part of the plan of study by the student's advisor and the major department. The work completed while required for a professional degree in law, medicine, or dentistry will be counted as part of the master's requirement for nondissertation degrees in the Graduate College only when the student is registered in an appropriate graduate degree program.

G. Two Master's Degrees
The granting by the University of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a 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 16 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 deposited with 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 by the thesis committee, one copy of the thesis must be deposited with the Graduate College not later than one month before graduation.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical to 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 comprehensive examination 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 will 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 present himself or herself for nonpassage, but not sooner than the next regularly scheduled examination period in the following session.

The examination may be repeated only once.

Upon recommendation of a department, the completion of a second degree may be substituted for the master's examination.

K. Examining Committee
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 department. At least two of whom are from the major department. If the examination committee fails 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 the committee.

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, printmaking, poetry, writing, acting, producing, stage design, dramatic interpretation, composition, instrumentation, poetry, fiction, and translation. Central to the program are an exhibition, a painting, a musical composition, or an oratorio, approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requires a minimum of 48 semester hours of graduate credit, at least 24 of which must qualify for residence credit at the 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 further requirements see "Section X. B. Plan of Study." "G. Major and Related Fields;" "H. Reduction of Old Credit;" "I. Limit on Professional Course;" "Master's Degree with Thesis;" "J. Final Examination;" and "K. Examining Committee."
B. Specialist in Education Degree

This degree is granted upon completion of a four-year, postbaccalaureate program designed for students 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, at least 24 semester hours must be completed in residence at this University, of which 15 semester hours must be earned while the student is on-campus within nine 12-month periods or during two summer sessions.

Twelve of the 60 semester hours are prescribed in the area of specialization. The others are in cognate fields, supervised experience, and electives. Four semester hours of research culminate in a written report.

Courses successfully completed ten or more years prior to the final 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.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master’s degree in Section X.B. Plan of Study: “C. Major and Related Fields”; “F. Limit on Professional Courses”; “J. Final Examination”; and “K. Examining Committee.”

A master’s degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master’s degree in question.

C. Master of Social Work Degree

The M.S.W. degree is conferred by University or Dean as evidence of knowledge and competence in the professional field of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at the University of Iowa.

2. A minimum of 60 semester hours in graduate social work, including a research requirement.

3. A final examination

A thesis is optional.

The requirement of 60 semester hours may be reduced for a student who can satisfy the faculty of the school that he or she has accomplished, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on 60 semester hours. In no case may a student qualify for the degree on less than 48 semester hours of graduate credit.

The curriculum is organized into four general areas: social 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: “F. Reduction of Old Credits”; “F. Limit on Professional Courses”; “H. Master’s Degree with Thesis”; and “K. Examining Committee.”

Section XII. Doctor of Degree

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 degree 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 one-third-time appointment by the department as contributing to the student’s doctoral program. Five years of record and assessment of fees, student registration and official record of all 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 examination. 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 concern, which shall be designated as the sponsoring department. Final approval of such individual program is granted by the Graduate College dean, who may add a member of the faculty or appoint a committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, permissively, 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 in the student’s college of Dentistry, Law, or Medicine will count for a graduate degree if 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. Credit accepted from the professional colleges may 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 advisor. Work completed while registered for a professional degree, such as law, medicine, or dentistry will not be counted as part of the one-third-time appointment 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 doctoral degrees. The master’s examination may be combined with the comprehensive examination to receive the doctorate for these candidates. The examining committee will set 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, as well as methods of testing. Specific requirements will be found in the departmental statements of admission standards and procedures (see "Section V.D."). 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 signing 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 examination of the candidate's mastery of the major and related fields of study, including all of the required and principal competence been certified.

The comprehensive examination is not a determinable qualifying examination. It is intended to evaluate the candidate's mastery of the subject at the end of the major and comprehensiveness of the candidate's master's degree. The examination will be completed under the direction of the department. The comprehensive examination and the final examination, which is a comprehensive examination of the student. The comprehensive examination will be evaluated by a committee consisting of the student committee and reporting as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College 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 recorded on the report form. The statement must specify the time allowed for satisfying the stipulations and must be specific in defining the area of further examination in a particular area 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 "unsatisfactory." 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. The 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 dean of the Graduate College.

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 courses, 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 doctoral or Ph.D. Postcomprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., the department chair or director of graduate study) and the student's advisor determine that the student is neither making significant use of University facilities (except library privileges) nor pursuing the consultation necessary to this work. The faculty must determine that the registration for a summer sessions 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 print can be no later than the end of this semester (summer allies) following the graduation. In which the final examination is passed, failure to meet this deadline will require resubmission of the student.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be vertically and then made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, to be deposited with the dissertation. The abstract must be approved and signed by the dissertation adviser. The abstract is published in the Journal of 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 adviser 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 in print form. Written dissertations shall be made available to all members of the examining committee not later 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 problems which have emerged in the immediate context of the investigation. The final examination may not be held until the next session after the student passes the comprehensive examination until the term is accepted for final deposit by the Graduate College; however, a student must pass the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in a rescission of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are those used for those for the comprehensive examination. (See "Section V.J. Comprehensive Examination.")

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.

The report of the final examination is due in the Graduate College office not later than 15 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes make the committee report unsatisfactory. In case of a report of unsatisfactory, the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only one time. doctorate of the major department.
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

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College of Law

Drew N. William How, Jr.
Associate dean: Gregory W. Williams
Assistant dean: Thomas C. Snedler

Professors: David C. Baskin (J.D., J. T. Y.)
Professor: Patrick B. Bauer, David A. Buys (J.
J. S. Randall), P. Baskin, Arthur S. Bremfield (John
P. Murphy Professor), William L. Boyd, Steven J.
Burton, William C. Baas (Theodore C. McMeekin
Professor), Martha S. Charnides, Robert R.
Cline, Charles W. Davidson, Donald D. Ellis, Jr.
Samuel M. Falo, Mary Louise Follmer, James K.
Franklin, Josephine Gitter, Michael D. Green, N.
William Hess, S. J. (Rowland Professor), Stanford
P. Hess (Rowland Professor), Michael A. Merkin,
Paul D. Neubauer, Stephen L. Sans, Peter M.
Shave, Ronald W. A. Stover, Joseph W. Stover, J.
Stevens, Keith C. Strother, Maas, Leo S. Vardoghi, David H. Brenan (Eaton School
Foundations Professor), Larry M. Reed (Charles
Professor of Law), Bruce H. Wexler (Hess G.
Murphy Professor), Alan J. Wolfe (Stephens R.
Wiley Professor), Gregory H. Williams

Associate professors: Eric G. Anderson,
Jonathan C. Carlson, W. H. Knight, Kenneth J.
Kress, Barry S. Matzynski, H. Johnson Powell,
John C. Rees, Gerald B. Witenfeld

Clerical Staff: Patricia Factor, Carrol Lacke,
Paul Papak, Barbara A. Schwartz

Lecturers: Robert Forrest, Heidi Hamilton, Nina
Hamilton, Kristie Hilde, Nicholas Johnson, Elmer
Jones, Philip A. Keil, Barry A. Lisicoff, Philip
Means, Jerry Mitchell, David A. Mott, James
Norensten, John Pappas, William V. Phelan, Earl F.
Ruan, Anthony V. Stavros, Serena Xer

Degrees conferred: J.D., LL.C.

Moving to the new Law Library
Program Objectives

The overarching objective of formal legal education is to provide students with the training for a lifetime of professional growth. The educational standards described in this section set forth the minimum requirements to which all law schools are expected to conform. These requirements are intended to ensure that law schools meet the needs of society and the legal profession.

The University of Iowa law program places an equal emphasis on the development of fundamental legal skills, writing, and an appreciation of the roles 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 continue challenging teachers 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 commitment to full-time faculty to the development of professional skills in a small-group individualized instruction format.

The University of Iowa College of Law decides upon its graduate degree of Juris Doctor (J.D.). To be eligible for the degree, a student must satisfy the residence requirement, receive credit for 36 semester hours of law courses, meet all financial obligations, and satisfy the college’s five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students require a better legal education when they devote substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law teaching and writing. The program 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 not able to write 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 enroll in 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 scheduled 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 students in the traditional program. Thus, an accelerated student who began law school in the summer of 1998 may graduate in August 1998. Students who begin school in the traditional program, however, are not required to remain in the 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 in lower hours without permission of the dean. No student may take more than 17 semester hours per semester or 35 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 time students may register for one course and two four-week courses are offered. Non-accelerated students may register either for one or both periods. Accelerated students attend 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 development of each student’s skills in legal analysis, argumentation, research, and writing.

In the fall semester (or summer session for accelerated students), the entire 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 of the first-year small-section course 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 point out the specific areas in which they might improve 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 law; to concentrate course work on writing and research opportunities in particular areas of interest (e.g., through specialized courses and seminars); and to expand their training in trial and writing and advocacy skills, in interviewing and counseling, in negotiations, and in litigation.Very few requirements exist to the final two years. All students must take 91:210 Appellate Advocacy 3 in the second year. Before graduating, all must take 91:222 Constitutional Law 2 and 91:308 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 matter; 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 3 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, Law Review, Journal of Corporate Law 3, 91:404-409 Legal Clinics 1, 91:410-411 Client Counseling I, Client Counseling 2, and advanced apprenticeship activities.

Legal Clinic

Students who have completed one-half of the law toward the J.D. degree are eligible to participate in the College of Law Legal Clinic Program, which offers opportunities for students to supply their theoretical knowledge to real cases under the guidance of faculty 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 and civil cases.

Students in the Civil Litigation Clinic work on matters relating to social welfare, handicapped rights, and civil rights.

Students in the Cherokee Program act as law clerks to trial court judges and public law officers. These short-term proceedings, conduct research, and draft legal memoranda and court papers.

Finally, students in the Immigration Program are assigned to work as legal assistants to state legislators and to
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 those courses plus clinic.

In addition to those 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 required in both degrees, the course 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, Counselor Education, Economics, Education, Educational Administration, English, Finance, Journalism and Mass Communication, Filatology, 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 may be obtained 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 area of accelerating global interdependence may find herself or himself confronted by problems that require knowledge accom-

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 offerings for the College of Law. In recent years graduates of this program have included lawyers from the Federal Republic of Germany, France, Italy, Luxembourg, the Netherlands, Pakistan, People's Republic of China, the Republic of South Korea, and Thailand.

Student Life

There are currently 11 student organizations at the college. These co-curricular programs, each managed by students, offer social skills training and, in two student publications, the opportunity to write for a publication of national prominence. 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 attempts 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 nearly every student, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the student's expenses. Applicants are urged to contact the financial aid office at the college for further information about sources 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 numerous, 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 due balance of feasibility and educational demand, each student should develop an appropriate combination of basic courses and develop that student's particular interests. The college endeavors to define the three basic objectives recommended by a committee of the Association of American Law Schools. Any person aspiring to legal school should keep these objectives in mind while planning an undergraduate course of study: education for comprehension and expression in work; 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 pointlessly toward later professional training and practice.

Applicants are urged not to sacrifice the broader perspective for details specialization.

Application Procedures

Applications may be obtained by writing to: Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file for/her application for admission by March 1 preceding the summer session or fall semester in which he/she wishes to enter. Applications should be sent to the Director of Admissions, College of Law, University of Iowa, Iowa City, Iowa 52242. An application fee of $10 must accompany the application. The applicant's baccalaureate degree will be a prerequisite to the University of Iowa. This fee is not refundable except for residency of Iowa students who are denied admission. No student from disadvantaged background who cannot afford this fee should deny it for any reason.

The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Admission Services Office, Box 2006, New Haven, Connecticut 06520. The College of Law must receive the applicant's LSAC report prior to the March 1 deadline for submission of applications.

In the LSAT/LSAS registration packet, the applicant will find Law School Application Matching Forms. To help the law schools get to know you, these forms should be completed and returned to the LSAC. The forms will be used to help you narrow the field of law schools those to which you are admitted.

The University of Iowa cannot process an application without a Law School Application Matching Form. Therefore, applicants should submit matching forms with their applications. Otherwise, the application will not be processed and will be held until the matching form is received.
Law School Admission Test

Each applicant for admission must take the Law School Admission Test (LSAT) after he/she has been administered by the Law School Admission Service, Box 11500, New York, NY 10086-1150, 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 of the semester for which they wish to receive credit.

Deposit

Applicants accepted prior to April 1 are required to make a nonrefundable deposit of $100 by April 1. Applicants accepted after April 1 must make the deposit within two weeks of being notified of their acceptance. In either event, the deposit need not be made if a financial aid package is下达. However, the deposit is due within two weeks after an applicant accepts a financial aid offer. For those who enroll, the deposit is credited toward the student's first semester tuition. An applicant who fails to make the deposit within the time specified forfeits his or her place in the entering class.

Evaluation Process

For 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 Iowa bar to register that intention with the court no more than 60 days after beginning law school. Details are available at 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 available from the Admissions Office of the College of Law.

19101 Cooperative Education Internship I 0.6 a.h.
19102 Cooperative Education Internship II 0.6 a.h.
19103 Cooperative Education Internship III 0.6 a.h.
19141 Legal Methods 1.0 a.h.
19142 Civil Procedure 1.0 a.h.
19143 Contracts and Sales Transactions I 3.4 a.h.
19144 Contracts and Sales Transactions II 3.4 a.h.
19145 Criminal Law 3.4 a.h.
19146 Criminal Procedure 3.4 a.h.
19148 Property I 3.4 a.h.
19149 Philosophy of Law 3.0 a.h.
19150 Property II 3.0 a.h.
19151 A First Look Approach to Professional Practice 2.0 a.h.
19152 Legal Aspects of Health and Medical Care 2.0 a.h.
19153 Human Rights in the World Community: Problems of Law and Policy 3.0 a.h.
19155 Introduction to International Law 3.0 a.h.
19201 Advanced Civil Procedure 3.0 a.h.
19202 Constitutional Law I 3.0 a.h.
19203 Constitutional Law II 3.0 a.h.
19204 Constitutional Law III 3.0 a.h.
19205 Constitutional Law IV 3.0 a.h.
19206 Constitutional Law V 3.0 a.h.
19207 Constitutional Law VI 3.0 a.h.
19208 Constitutional Law VII 3.0 a.h.
19209 Constitutional Law VIII 3.0 a.h.
19210 Appellate Advocacy I 0.5 a.h.
19211 Appellate Advocacy II 0.5 a.h.
19212 National Trial Competition 1.0 a.h.
19213 ABA National Moot Court Competition 1.0 a.h.
19214 National Moot Court Competition 1.5 a.h.
19215 Appellate Advocacy 1.0 a.h.
19220 Appellate Advocacy 1.0 a.h.
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Dean: John W. Schield
Assistant dean, academic affairs and student affairs: Carol A. Ackermann
Associate dean, academic affairs: Liz Montgomery
Associate dean, continuing medical education: Richard M. Capler
Associate dean, Veterans Administration affairs: John E. Keil
Assistant dean, administration and finance: William L. Dillibridge
Consultants to the dean: Paul M. Sembeth, Ph.D.
Assistant to the dean: Richard K. Schreib
Degrees offered: B.S., M.D., M.S., Ph.D.
The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, not only those in the health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences across the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through refresher, short courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a state-wide health care resource.

Beyond its academic responsibilities as the only college in Iowa that offers work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various other health agencies; some faculty also take part in the University's Health Services Research Center. The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists, physical therapists, and nuclear medicine technologists.

The medical and associated medical science students have several opportunities to gain firsthand experience in physicians' offices and community hospitals. For medical graduates, the college offers family practice residency programs at 15 community hospitals in seven cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level. Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, The University of Iowa College of Medicine meets the requirements of all state licensing boards. Its diploma admits the holder to all privileges granted to graduates of all medical colleges of the United States. All other professional programs administered by the College of Medicine are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part--not apart from—their work in teaching. Many have earned national and international honors.

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 immunology, pathology, and physical therapy.

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 want 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 academic 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 life sciences available in Iowa, 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, immunology, 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 low research and training programs related to cardiovascular diseases and encompasses the following federally funded programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Atherosclerosis, Specialized Center of Research in Ischemic Heart Disease, Hypertension 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 diseases. It was established in 1970 with support from the National Institute of Arthritis, Metabolism, 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 1985 to study neural and hormonal controls of gastrointestinal function. It includes research centers on gastrointestinal, functional, motility, and analysis of data on biomechanics.

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 Bowser Science Building and the Medical Laboratories. A Health Science Library is a vital resource centrally located on the medical campus. Students acquire clinical experience in the 1,643-bed University of Iowa Hospitals and Clinics complex, in the adjacent 322-bed Veterans Administration Medical Center, and in a score 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 1,643-bed clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 381 resident physicians and dentists who make up the core staff of the hospitals and clinics, where facilities are provided for teaching 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 Center" in the "Special Resources at Iowa" section of the Catalog.

Research Facilities

A number of facilities that support the research and teaching mission 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 Carver Surter 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 the Catalog.

The animal care facility arranges for the purchase, maintenance, and proper record-keeping of a wide variety of animals. The bioengineering facility provides services for the design, construction, and repair of medical equipment. The Office of Consultation and Research in Medical Education is a center for the training of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, research, and administrative services 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 off forms. The Spectrum of Composition is greatly expanded by Graphics, a computer-generated graphics system. The P3 facility meets federal guidelines for contamination-free small to medium-sized animal cage-containment. It also can be used for research on other nonhuman primates or small animal species.

A facility for mass spectrometry provides service for structural study of important biomedical 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 Medical 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. 60.103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical radiology and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed. 60.104 Medical Embryology offers lectures on human embryology with emphasis on the clinical aspects of development. Registration is limited to medical students; graduate students are referred to 60.217. The course is offered fall semester.

60.105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

Second Semester

72.212 Medical Physiology offers the student an understanding of responses of an organism given 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.

61.100 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.

50.254 Medical Neurosurgery is an integrative course dealing with the basic principles of neurophysiologic mechanisms and the human central nervous system. The laboratory primarily involves the anatomical study of spinal cord and brain.

61.351 General Pathology for Medical Students is a course in medical histology in this semester to increase efficiency of the learning process. This course is self-paced, with the student "testing out" of each section as it is completed. Emphasis is placed on pathogenesis and altered function in normal and tissue degeneration, infection, and growth disorders. Clinical problems relating to death and disease periods have replaced laboratories in this course.

Third Semester

60.282 Systems Pathology for Medical Students applies the principles given in the preceding courses to diseases in an organ system approach. Student-centered learning is fostered by discussion groups and practice in case analysis.

63.199 Preventive Medicine presents fundamentals to help prepare the student in some of the sociologic, economic, and public health aspects of medical practice.

71.106 Pharmacology for Health Sciences: Medical pharmacology bridges the clinical and basic sciences and provides students with principles that must be understood in
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 part 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 length of morning is spent in areas of medicine that do not fall naturally into organ systems, and on re-emphasis 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, six weeks in pediatrics, six weeks in psychiatry, and two weeks in each of anatomy, dermatology, neurology, obstetrics/gynecology, and surgery, to achieve a broad base knowledge to be used throughout medical education.

The clinical clerkship year is the most critical period of time in medical education, for it is when the student takes on the posture of a physician to learn first-hand the complexity of medicine 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 funded or sponsored programs. The Medical Education Assistance Program, Carrol Brown Medical Student Loan, and Northland College of Medicine programs. The Dr. George Scovell 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 with which application is being made. Prospective students are urged to apply as early as possible. The closing date is December 31.

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.

Each applicant must file with the University Office of Admissions an official transcript from each college he or she has attended.

Requirements

An applicant 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;

Completed three years of a baccalaureate program meeting the general graduation 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, and an advanced biology course.

All the foregoing must be taken with approval.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the Doctor of Medicine degree. The medical curriculum program is designed to 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 to analyze, synthesize, 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, and administration.

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 these are from the departments of medicine, chemistry, and pharmacology. There are also two students from the medical school, and one is from nursing.

Regulations and Procedures

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the course(s) 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 explanation for the student is written in detail in the Handbook for New Students, and that the student demonstrates proficiency in each required course.

Evaluation of student progress in courses is based on examinations or other tests 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 cognitive, problem-solving, manual, communicative, and interpersonal skills and insists that all students adhere to general principles of medical ethics. These principles are set forth in the Student Handbook and are expected to be followed at all times.

Scholastic performance in the first three years is reviewed at the end of the academic year and at other times as requested by the associate dean for medical student affairs.

The committee reviews the course directors' records of all students who are recommended for promotion at the end of each grading period. The committee reviews the record of any student presented by the course director or the associate dean for medical student affairs as doing continually poor academic work, or failing to demonstrate that he has met any of the eleven skills or abilities detailed above, or not meeting the medical ethics standards. The committee considers other business or
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 withdrawal policies require that the student be re-elected 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 discretion as to the best way to resolve the problem. The medical school has a formal procedure as stated in "Protection 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 there is a problem. Lacking a satisfactory outcome, the student then should turn to the other chair or head. If satisfaction is not obtained, the student may discuss the complaint informally with the appropriate medical student affairs officer of the College of Medicine. This informal procedure would not become involved in the involvement of the office of the dean in an official capacity. Should these procedures not resolve the situation, 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 entry into the student's permanent record that are a 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 complaint 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 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 technologists, 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 wish to register for certain courses will be admitted only if the course is an essential component of a program of instruction 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 president in charge of the course.

Nondepartmental Courses
501 Medicine Elective Fourth Year 0.75
502 Medicine Credits/Third Year 0.75
503 Internship 2.75
504 Medicine in the Humanities 1.25
505 Human Sexuality for Health Practitioners 1.0
506 Medical Ethics and Issues: 3.0
507 Professional Skills for the Medical Professor 2.0
508 Occupational medicine: 2.0
509 Medical Ethics and Issues: 3.0
510 Law and Medicine for Physicians 1.0
511 Preparatory courses for law school 1.5
512 Introductory courses in professional activities 1.0
with the Cancer Center, Cardiovascular Research Center, Core Center: Diabetes and Endocrinology, Digestive Diseases Core Center, and the Alzheimer’s Disease Research Center. Faculty and students also have access to outstanding research facilities throughout The University of Iowa Medical Center.

Courses

- **08.035 Human Anatomy**
  - Lectures and laboratory demonstrations on human anatomy. Open to non-science and pre-health students. Prerequisite: 01.336 or equivalent.

- **08.038 Microbiology**
  - Laboratory study of cells, primary tissues, and organs. Emphasis on cell and virus infections. Includes immunology. Open to only dental hygiene students. Offered fall semesters.

- **09.110 Human Gross Anatomy for Dental Students**
  - Regional dissections, lectures, and demonstrations with emphasis on organs involved in the head and neck. Includes immunology. Open to graduates in the class of 1998 with consent of instructor. Offered fall semesters.

- **09.120 Principles of Human Anatomy**
  - Lectures on gross and microscopic anatomy, with particular emphasis on organs involved in the respiratory and mineralization. Open to pharmacy students.

- **09.125 Gross Human Anatomy for Medical Students**
  - Regional dissections, lectures, demonstrations, and dissections, including clinically relevant areas of anatomy. Regional anatomy and classical anatomy with clinical correlations. Open only to medical students, graduate students in psychology, and graduate students in social work.

- **10.194 Medical Technology**
  - Lectures on normal physiology with emphasis on the pathology and pathology of disease in laboratory studies. Prerequisite: 10.310. Offered fall semesters.

- **12.251 General Pathology for Medical Students**
  - Microscopic study of cells, cellular tissues, and organs systems. Open only to medical students. Prerequisites: 09.334 or equivalent. Offered fall semesters.

- **12.265 Human Anatomy**
  - Regional dissections, lectures, demonstrations, and dissections with emphasis on normal anatomy with emphasis on normal anatomy of the urinary system. Open only to medical students. Prerequisites: 09.334. Offered fall semesters.

- **12.275 Human Anatomy**
  - Regional dissections, lectures, demonstrations, and dissections with emphasis on normal anatomy. Open only to medical students. Prerequisites: 09.334. Offered fall semesters.

- **12.295 Gross Human Anatomy for Physicians**
  - Regional dissections, lectures, demonstrations, and dissections with emphasis on normal anatomy. Open only to medical students. Prerequisites: 09.334. Offered fall semesters.

- **19.226 Medical Photography**
  - Lectures on human anatomy with emphasis on the pathology and pathology of disease in laboratory studies.

- **20.235 General Pathology**
  - Microscopic study of cells, cellular tissues, and organ systems. Open only to medical students. Prerequisites: 09.334 or equivalent. Offered fall semesters.

- **20.241 Oral Histology and Embryology**
  - Emphasis on health and medical education. Open only to students in the class of 1995. Prerequisites: consent of instructor. Offered fall semesters.

- **20.242 Independent Study in Anatomy**
  - This course is designed to aid in the development of research skills. Opportunity for independent study with consent of instructor. Prerequisites: consent of instructor.

- **20.244 Anatomy Seminar**
  - Small groups to share and discuss a program with a group of students of the faculty who are actively engaged in research.

- **21.235 Gross Human Anatomy for Graduate Students**
  - Regional dissections, lectures, demonstrations, and dissections, including clinically relevant areas of anatomy. Regional anatomy and classical anatomy with clinical correlations. Open only to graduate students in medicine, dentistry, and psychology. Prerequisite: consent of instructor. Offered fall semesters.

- **21.243 General Histology for Students**
  - Computerized study of cells, tissues, and organs of the light and electron microscopic level. Prerequisite: consent of instructor. Offered fall semesters.

- **21.266 Predoctoral**
  - Individualized student research training is a topic of the student and advisor. Prerequisites: 20.126 and consent of instructor. Offered fall semesters.

- **21.267 Interviewing**
  - A comprehensive study of the interview process. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **21.268 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **21.269 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **21.275 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.275 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.285 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.295 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.305 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.315 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.325 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.335 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.345 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.355 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.365 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.375 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.385 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.395 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.405 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.415 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.425 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.435 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.445 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.

- **30.455 Doctoral Thesis**
  - An investigation of the area of study under the guidance of a faculty advisor. Open only to students in the class of 1996. Prerequisite: consent of instructor.
Courses
1164 Clinical Anesthesiology 2 a.h.
Clinical anesthesiologists in the operating room and recovery areas include anesthetists, clinical care nurses, as well as the anesthetic assistant. Required for prior medical students.
1167 Clinical Anesthesiology Senior 2 a.h.
Instruction and practical experience in various aspects of anesthesia for surgical procedures. Basic techniques of general, spinal, epidural, and peripheral nerve block techniques. Instruction in monitoring techniques and techniques for emergency situations. In addition, specific preoperative, perioperative, and postoperative care of patients and case documentation; pharmacology of specific anesthetics and their effects on the cardiovascular system, respiratory and neuroendocrine functions, and various medical treatments. Course includes a 2-week anesthesiological anesthesiology and medical history conference.
1168 Intensive Care 2 a.h.
Evaluation of measurements at anemist is evaluated in the medical Intensive Care Unit. The course is aimed at improving the critical care skills of the medical student. The course will be offered on a rotating basis and in those setting pending availability.
Pharmacology (see course descriptions A 1181-1183)
1169 Critical Care 2 a.h.
Research in the field of anesthesiology is an academic individually arranged by student and approved of by faculty advisor. 
1180 Special Studies on Campus arr.
Research in an enriched patient setting in anesthesiology is an academic individually arranged by student and approved of by faculty advisor. 
1185 Special Study off Campus arr.
The Division of Associated Medical Sciences
Head: Risa Montgomery
The Division of Associated Medical Sciences provides coordination of professional programs that presently include medical technologies, nuclear medicine technologies, physical therapists, and pharmacy assistants. Flexibility in undergraduate programs prepares students for entry into these professional areas. The student usually selects the major track offered by the College of Liberal Arts and is assigned a faculty adviser from this 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 advisor to assure the proper selection of courses.
This is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisors. Programs are abbreviated as follows: MT—Medical Technology; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

Nuclear Medicine Technology, PA—
Physician Assistant, PT—Physical Therapy
Freshman Year
First Semester
1013 Rhetoric 4 a.h.
Foreign civilization and culture 3 a.h.
Physical education skills 2 a.h.
453 Principles of Chemistry I 3 a.h.
2196-15 Mathematics for the Biological Sciences 4 a.h.
Total 16 a.h.
Second Semester
1023 Rhetoric 4 a.h.
Historical Perspectives 3 a.h.
Physical education skills 1 a.h.
454 Principles of Chemistry II 3 a.h.
373 Principles of Animal Biology (NMT, MT, PT) 5 a.h.
621 Introduction to Biostatistics (MT) 4 a.h.
Total 16-18 a.h.
Sophomore Year
First Semester
Humanities 3 a.h.
Social sciences 3 a.h.
452 Organic Chemistry I (MT, PA) 3 a.h.
2910 College Physics (NMT) 4 a.h.
373 Principles of Animal Biology (NMT, PA, PT) 5 a.h.
61-157 General Microbiology (MT) 5 a.h.
Physical education skills 5 a.h.
Total 15-16 a.h.
Second Semester
Historical perspectives (MT) 3 a.h.
Humanities 6 a.h.
Social sciences 3 a.h.
2912 College Physics (NMT) 3 a.h.
1601 laboratory course (PA, PT) 3 a.h.
4122 Organic Chemistry II (PA) 3 a.h.
313 General Psychology (PT) 4 a.h.
4101 Elementary Quantitative Analysis (MT) 4 a.h.
63-161 Introduction to Biostatistics (MT) 3 a.h.
Total 14-18 a.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 Program. Others complete the additional requirements below.
Junior Year
First Semester
Foreign language 4 a.h.
225 Introduction to Computing with FORTRAN (NMT) 3 a.h.
213 College Physics (PT) 4 a.h.
3715 Human Genetics 3 a.h.
37-103 Comparative Vertebrate Anatomy (MT) 4 a.h.
171 Cell, Tissue, and Organ Biology 5 a.h.
Total 16 a.h.
601 Elementary Human Anatomy (NMT) 4 a.h.
5113 Introduction to Clinical Psychology (PT) 3 a.h.
Total 15-16 a.h.
Second Semester
Foreign language 4 a.h.
20-103 College Physics (PT) 4 a.h.
2130 Cell Physiology (PT) 3 a.h.
2140 Human Physiology (NMT,MT,PT) 4 a.h.
3128 Fundamental Genetics (PT) 3 a.h.
225-110 Biostatistics (NMT,PT) 3 a.h.
Total 16-15 a.h.
Senior Year
General education, elective, or advanced courses in the departments of psychology, 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: Mario Schneidmiller
Medical director: James A. Getten
Associate professor: James A. Getten
Lecturer: Melvin Schneidmiller
Assistant: Larry Siefert, Rhonda Hydzie, James O'Connor
Assistant to teaching: Kathleen Kelly, Lucy Wall
Adjunct instructor: John Abadi
Adjunct associate: Thomas Perniciaro
Primary instructor: Mike Brenna, Debra Carre, Linda Degannan, John Fleisch, Mary Hight, Jerry Hudson, Pat Kranert, Jackie Lucero, Melanie Loosan, Martha Neilson, Ross Meyer, Loren Schmidt, Karen Storr
Degrees offered: B.S.

Medical technologists perform the laboratory tasks on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospitals, public, and government institutions. Clinical physicians, licensed clinicians, and public health, pharmaceutical and biological, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

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. Satisfactory completion of this program qualifies the student to take all medical technology certification
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 an unfinished 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 the prerequisites and University graduation requirements by the end of the preprofessional (clinical) year. Sixteen semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry. Sixteen semester hours of mathematics, including a course in statistics; and Sixteen semester hours of biology, including general zoology, microbiology, physiology, and parasitology.

Expenses
Medical Technology students in the professional year curriculum are responsible for their textbooks, University tuition, and student fees. Laboratory coats and equipment and microscopes are provided by the program.

Nuclear Medicine Technology

Director: Kenneth A. Helms
Medical director: Peter T. Kircher
Technical director: John A. Bricker
Professor: Frank H. Cheng, James C. Darouth, Peter T. Kircher, Richard L. Peterson, Maggie H. Stevens
Associate professor: Wei Cheng, James E. Sedlak
Assistant professors: Gary R. Conrad, William A. Pett, Karen Reif
Clinical associate professor: James A. Provo (College of Pharmacy)

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 fostered an increasing 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 specialized equipment and computers to track the movement and localization of radioactive tracers in the human body. Other basic job responsibilities may include: radiation safety; quality control; radiopharmaceutical preparation and administration; and collection and preparation of biological specimens. To measure levels of hormones, drugs, or other body components. In these functions the nuclear medicine technician works hand-in-hand with nuclear medicine physician, health physicists, radiopharmacists, and radiologists as an integral part of a highly trained specialty team.

The Nuclear Medicine Technology Program at The University of Iowa is fully accredited by the Committee on Allied Health Education and Accreditation, and the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AHA Accreditation Board involves three years of preclinical work in the College of Liberal Arts and the College of Medicine, and a minimum of 12 months of professional clinical experience, available at The University of Iowa Hospitals and Clinics and the Iowa Veterans Administration Medical Center.

Upon satisfactory completion of the four-year program, the student receives the Bachelor of Science degree and a certificate of training from the College of Medicine. The graduate is then eligible for national certification as a nuclear medicine technologist.

The required courses in the freshman and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year. Applications are strongly advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in biology, chemistry, biochemistry, or microbiology. This way, students who are not admitted to the NMT program can complete a degree in their chosen area.

Junior Year

Recommended courses:

601 Elementary Human Anatomy
7212 Human Psychology
2567 Introduction to Computing with FORTRAN
**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, radiobiology, radiocardiography and tracer techniques, radionuclidics and instrumentation, radionuclidics laboratory procedures, radiation protection, patient care, medical terminology, anatomy and physiology, the bases of nuclear medicine procedures, physics and instrumentation, administration and management, engineering, and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on clinical imaging, clinical radiopharmacy, computer applications, and interpretation of medical studies to interpret radionuclidic images, diagnostic X-ray, computed tomography, magnetic resonance imaging, and ultrasound.

The clinical year consists of courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>74:101</td>
<td>Prerequisites of Nuclear Medicine</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>74:132</td>
<td>Introductory Clinical Nuclear Medicine</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>74:133</td>
<td>Principles of Nuclear Medicine</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>74:140</td>
<td>Intermediate Clinical Nuclear Medicine</td>
<td>9 s.h.</td>
</tr>
<tr>
<td>74:154</td>
<td>Advanced Clinical Nuclear Medicine</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

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 basic social sciences (sociology and psychology are recommended).

A minimum of 3 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 technology program. Promotion from 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 class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in April, and the class is selected by May 1. Applicants are limited to eight students. Because prerequisites are becoming increasingly important, prospective students are encouraged to apply early 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: Cary Gubser

Professor: Cary Smith, Cary Gubser

Associate professor: David Nelson

Assistant professor: Col. Robert L. Koch

Lecturers: John Berry, Byron Berlin, Thomas Coulter

Adjunct assistant professor: William Dowdle

Adjunct instructor: Robert Miner

Adjunct associate professor: Kevin O'Neill, Jody O'Neill

Kolm, Rebecca, Landon, Ben Liles, Loretta Laing, John Wadsworth

Consultants: Frank Marth

Degree offered: Certificate in physical therapy, M.A.

Physical therapists participate in the evaluation of the capabilities and disabilities 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 continued 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.

Education in the program is available at three different levels: the basic professional (certificate), the Master of Arts, and 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 center campus, which includes The University of Iowa Hospital and Clinics, the nation's largest university-owned teaching hospital. The location makes several resources readily accessible to the Physical Therapy Program: basic science and medical library, basic science courses, and a tangible 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 candidates for the Physical Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

- First Semester:
  - 60:10 Human Anatomy 4 s.h.
  - 101:10 Fundamentals of Physical Therapy 3 s.h.
- Second Semester:
  - 101:151 Kinesiology 3 s.h.
  - 101:131 Therapeutic Physical Agents I 3 s.h.
  - 101:141 Introduction to Physical Therapy 1 s.h.
  - 60:201 Introduction to Human Pathology 3 s.h.
- Third Semester:
  - 101:132 Emotional Aspects of Disability 1 s.h.
  - 101:119 Clinical Management 3 s.h.
  - 101:134 Scientific Inquiry I 1 s.h.
Third Semester
101:102 Fundamentals of Personal and Social Sciences 3 s.h.
101:111 Therapeutic Exercise II 4 s.h.
101:112 Principles of Neurology and Clinical Sciences 1 s.h.
101:195 Clinical Education 1 s.h.
101:150 Scientific Inquiry II 2 s.h.
101:121 Physical Therapy Management and Administration 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 begin 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 core and one advanced course in zoology or biology, 12 semester hours; zoology preferred), a complete introductory core in chemistry (8 semester hours), a complete introductory core in physics (8 semester hours), a complete introductory core in psychology (6 semester hours), a 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-fourth laboratory instruction.
The applicant must have a minimum overall grade-point average of 2.0, 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 emphasis 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 release, CNS control mechanisms), and cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation). Use of extramural laboratories 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 MA 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.

Required courses:
201:211 Biomedical Introduction 3 s.h.
210:101 Thesis Physical Therapy 4 s.h.
210:336 Analysis of Scientific Literature 2 s.h.
63:182 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.

101:213 Principles of Human Motion 3 s.h.
101:275 Evaluation of Selected Neuromuscular Disorders 3 s.h.
101:290 Cardiopulmonary 3 s.h.
101:290, 292, or 294 Practicum (Teaching, Research and/or **Clinical) 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 3 s.h.
101:335 Independent Study 3 s.h.
101:285 Electromyography in Kinesiology and Biomechanics 3 s.h.
101:325 Research in Therapeutics 3 s.h.
27:153 Advanced Anatomy and Kinesiology 2 s.h.
27:141 Exercise Physiology 3 s.h.
71:120 Drugs: Their Nature, Action, and Use 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 in physical therapy and must have earned a grade-point average of 2.75 or higher (on a 4.0 scale) on 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 college academic work, scores on the Graduate Record Examination (GRE) Aptitude Test, recommendation from three sources, and personal interview. The applicant must also meet the requirements established by the Graduate College.
Financial Aid
A number of teaching and research assistantships are available; partial clinical work may also be available.

Courses
The courses listed below are open only to students in the preprofessional program.

180-04 Fundamentals of Physical Therapy 1 a.
180-06 Physical Agents I 1 a.
180-07 Theoretical Fundamentals I 1 a.
180-08 Clinical Scenarios and Rehabilitation 1 a.
180-15 Principles of Neuroneural and Clinical Science 1 a.
180-16 Introduction to Clinical Medicine 1 a.
180-17 Basic Pathophysiology 1 a.
180-18 Principles of Neurologic and Clinical Science 1 a.
180-19 Principles of Surgical and Clinical Science 1 a.
180-20 Principles of Orthopedics and Clinical Science 1 a.
180-21 Principles of Orthopedics and Reoperation 2 a.
180-22 Principles of Orthopedics and Reoperation 2 a.
180-23 Principles of Orthopedics and Reoperation 2 a.
180-26 Principles of Orthopedics and Reoperation 2 a.
180-29 Principles of Orthopedics and Reoperation 2 a.
180-30 Principles of Orthopedics and Reoperation 2 a.
180-33 Principles of Orthopedics and Reoperation 2 a.
180-34 Principles of Orthopedics and Reoperation 2 a.
180-36 Principles of Orthopedics and Reoperation 2 a.
180-37 Principles of Orthopedics and Reoperation 2 a.
180-38 Principles of Orthopedics and Reoperation 2 a.
180-40 Principles of Orthopedics and Reoperation 2 a.
180-41 Principles of Orthopedics and Reoperation 2 a.
180-42 Principles of Orthopedics and Reoperation 2 a.
180-43 Principles of Orthopedics and Reoperation 2 a.
180-44 Principles of Orthopedics and Reoperation 2 a.
180-45 Principles of Orthopedics and Reoperation 2 a.
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180-83 Principles of Orthopedics and Reoperation 2 a.
180-84 Principles of Orthopedics and Reoperation 2 a.
180-86 Principles of Orthopedics and Reoperation 2 a.
180-87 Principles of Orthopedics and Reoperation 2 a.
180-88 Principles of Orthopedics and Reoperation 2 a.
180-89 Principles of Orthopedics and Reoperation 2 a.
180-90 Principles of Orthopedics and Reoperation 2 a.
Physician Assistant Program

Director: Donna Oliver
Mentor: douglas w. ladue
Associate professor: douglas w. ladue, donna oliver
Associate: patricia a. mcKevety
Assistant: Andrew left-Lacey
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 a typical office setting 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 problem. 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 various 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 qualifies students for the Bachelor of Science degree and for the opportunity to take the National Certifying 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 the health care team. Extensive clinical training is provided in affiliated hospitals and office-based practices in a range of primary care medical specialties including internal medicine, obstetrics, surgery, 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 clinical program is taken at The University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state in primary care settings. The two-year educational program is divided into three broad phases.

1. Initial didactic phase consists of eight months of course work in a number of basic science areas, including anatomy, biochemistry, clinical pathology, microbiology, pathology, pharmacology and physiology and 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 phase.

2. The second phase is the 10-month 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 of the common and catastrophic diseases 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 third-year medical students.

3. The third clinical phase consists of supervised rotations of 6 to 8 weeks duration in the general medical, surgical, obstetric, and pediatric specialties. These clinical rotations are designed to provide the student with instruction and experience in the care of patients in a manner that facilitates effective integration of the knowledge, skills, and attitudes derived from the basic science and pre-clinical phases of the program. Clinical training is provided by The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Centers in Des Moines and Iowa City, Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout the state. Students gain additional clinical experience through placement with selected preceptors involved in clinical work in office-based practices.

The didactic and clinical phases of the program emphasize primary health care delivery and the use of physician assistants as members of the health care team. The program is integrated with the teaching of the College of Medicine, permitting interdisciplinary assignments between various medical and health care professional students.

Professional Curriculum

First Year

71:235 Pharmacology for Health Sciences: Physician Assistant Students 4.0 s.h.
55:105 Law and Medicine for Physician Assistant Students 1.0 s.h.
71:111 Gross Anatomy for Physician Assistant Students 4.0 s.h.
61:12 Health Sciences Microbiology 4.0 s.h.
69:203 Introduction to Human Pathology 4.0 s.h.
99:164 Biochemistry for Physiologic assistent Students 3.0 s.h.
117:10 Seminar for Physician Assistant Students 2.0 s.h.

Phase II

50:121 Introduction to Clinical Medicine for Physician Assistant Students 20.0 s.h.

Second Year

Required clinical rotations:

70:555 Pediatrics for Physician Assistant Students 5.0 s.h.
75:555 General Surgery for Physician Assistant Students 6.0 s.h.
78:555 Internal Medicine for Physician Assistant Students 6.0 s.h.
110:555 Family Practice I for Physician Assistant Students 6.0 s.h.
110:556 Family Practice II for Physician Assistant Students 6.0 s.h.
60:100 Obstetrics and Gynecology for Physician Assistant Students 6.0 s.h.
73:190 Psychiatry for Physician Assistant Students 4.0 s.h.
Elective clinical rotations, selected from the following:

70:102 Pediatric Elective for Physician Assistant Students 2.0 s.h.
70:103 Emergency Room Elective for Physician Assistant Students 2.0 s.h.
70:104 Orthopedic Elective for Physician Assistant Students 2.0 s.h.
115:500 Family Practice Elective for Physician Assistant Students 2.0 s.h.
70:106 Internal Medicine Elective for Physician Assistant Students 4.0 s.h.
62:55 Dermatology Elective for Physician Assistant Students 2.0 s.h.
64:100 Neurology Elective for Physician Assistant Students 2.0 s.h.
74:56 Radiology Elective for Physician Assistant Students 2.0 s.h.
75:110 Surgery Elective for Physician Assistant Students 2.0 s.h.
70:105 Rehabilitation Elective for Physician Assistant Students 2.0 s.h.
75:555 General Surgery Elective (Cardiology) for Physician Assistant Students 4.0 s.h.
70:120 Urology Elective for Physician Assistant Students 2.0 s.h.
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 $450. Microscopes are not required.

Courses
117.001 Cooperative Education Pre-Physician Assistant Training Assignment 5 s.h.
117.2 Physician Assistant Clinical Second Year arr.
117.30 Cooperative Education Pre-Physician Assistant Training 5 s.h.
117.20 Introduction to Selected Health Professions 2 s.h.

Pharmacology
Introduction to the history, organization, education, and role of health professionals in the fields of medical and surgical treatment, pharmacology, and health care systems. This course is designed to provide a broad overview of the field of pharmacology. The course will cover the basic principles of pharmacology, including the mechanisms of drug action, drug interactions, and adverse effects of medications. The course will also cover the use of medications in the treatment of common medical conditions, as well as the ethical considerations surrounding the use of medications in patient care.

Biochemistry
Acting head: Charles Secorov
Professor: Arthur J. Sisson, Roger Chaboyer
Professors emeriti: Dean P. Berg, Joseph L. Bach, Georgia Stainier, Saul B. Silverman
Associate professors: Barry H. Granger, Gene F. Luna, Peter Rutterman, Joseph A. Weidler
Assistant professors: Alice R. Fubini, 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 by 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 30.120, 30.130, 30.150, and 30.151) and a course of electives in oral presentation. Students spend about half of their time working in three different laboratory sections (30.251: 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 microcourses in biochemistry and 5 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 attend 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 and transport, and the structure and function of cellular membranes, regulation of cellular shape and motility, and mechanisms of hormone action.

Facilities
Biochemistry occupies modern research quarters in the Brown Science Building, as do the departments of Anatomy, Microbiology, and Immunology, and the Physiology and Biophysics, 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 there are many common-use facilities, including instrument rooms, reading rooms, storage areas, preparation rooms, and a stockroom.
in The University of Iowa Hospitals and Clinics, where patient care is of a nature more typical of family practice.

During the last year a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity for total participation in the practice—both inpatient and outpatient—at the Mercy patient care site. Residents are specifically designed to provide breadth of experience. In the second and third years residents spend increased time at the Family Practice Center and at The University of Iowa Hospitals and Clinics.

Facilities

The department office, located in Steider Building on the health center campus, is the center of department activities. It contains the family practice office, and the Family Practice Model Office. Patient families are assigned to a resident with faculty supervision and are seen by appointment. Responsibility for the patient family remains with that resident for the period he or she is in the training program. Emphasis is placed on teaching the principles of practice management, including the organization and management of personnel, decision making, patient record and bookkeeping procedures, and chart writing. These techniques and methodologies are required to manage a private practice.

Courses

115-102 Human Dimensions in Medicine 1 h.

This course provides an overview of the humanistic and social aspects of medical care. The course is designed to enhance the ability of the medical student to understand the educational, emotional, social, cultural, and health care needs of people. Emphasis is on the development of skills necessary for effective human interactions in medicine and family medicine.

115-202 Principles of Family Medicine 2 h.

This is a course on the principles of family medicine with emphasis on problem-oriented health care delivery. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-302 Foundations of History and Physical Examination 2 h.

This course provides an overview of the family medicine curriculum and the development of clinical skills. Emphasis is on the development of skills necessary for effective human interactions in medicine and family medicine.

115-305 Preceptorship in Family Practice 2 h.

The course is designed to provide an overview of the family medicine curriculum and the development of clinical skills. Emphasis is on the development of skills necessary for effective human interactions in medicine and family medicine.

115-401 Family Practice Clerkship, Broadlawns Hospital, Des Moines Family Health Center 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-403 Emergency Room Outpatient Clinic, Broadlawns Hospital, Des Moines 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-405 International Health Care 4 h.

This is a course on the principles of practice management, including the organization and management of personnel, decision making, patient record and bookkeeping procedures, and chart writing. These techniques and methodologies are required to manage a private practice.

115-407 Preceptorship in Family Practice 1 h.

This course provides an overview of the family medicine curriculum and the development of clinical skills. Emphasis is on the development of skills necessary for effective human interactions in medicine and family medicine.

115-409 Emergency Room, Broadlawns, Des Moines 4 h.

This course provides an overview of the family medicine curriculum and the development of clinical skills. Emphasis is on the development of skills necessary for effective human interactions in medicine and family medicine.

115-410 Family Practice Clerkship, Iowa 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-411 Family Practice Clerkship, Des Moines 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-413 Family Practice Clerkship, Scripps Clinic, La Jolla, Calif. 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-414 Family Practice Clerkship, Scripps Clinic, La Jolla, Calif. 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.

115-415 Family Practice Clerkship, Scripps Clinic, La Jolla, Calif. 4 h.

Clinical experience in family medicine inpatient and outpatient setting provides patient care experience to medical students. During the clerkship, students are required to work with patients in a variety of settings, including hospitals, clinics, and family health centers. The course is designed to enhance the skills of the student in the diagnosis and management of common and acute health problems encountered in the practice of family medicine. The course also provides an overview of the scope of practice of family medicine.
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 meaningful 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 54 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
- 80.201 Health Services Administration
- 80.202 Health Services Administration II
- 80.203 Health Services Administration III
- 80.204 Health Services Administration IV
- 80.205 Issues in Health Management and Policy
- 80.210 Accounting in Health Administration
- 80.212 Health Economics
- 80.215 Financial Management of Health Institutions
- 80.217 Quantitative Methods in Health Administration
- 80.223 Quantitative Methods in Health Administration II
- 80.225 Health Information Systems
- 80.226 Health Care Marketing Research Methods
- 80.227 Legal Aspects of Health and Medical Care

For Health Services Administration, offers two graduate degrees—the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). The M.A. program meets the needs of those seeking managerial positions in health care or health-related organizations. The Ph.D. program prepares candidates for academic or research careers, as well as senior-level executive and policy positions.

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. Students are then advised 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 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 enrolled in 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 university. Students are then admitted formally to the University of Iowa College of Medicine. The masters program is designed to complete general graduation requirements and the prerequisites of the program prior to admission. It is advisable to express interest during the freshmen or sophomore 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 affiliated 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.
 Felowships and Residencies

Most students choose to complement their academic training with an administrative fellowship or residency prior to accepting their first permanent position. Such experiences afford a valuable insight of observing, developing, and demonstrating practical management skills. The fellowship program takes as an active role in assisting interested students to identify and secure fellowship and residency positions.

Doctor of Philosophy

The Iowa Graduate Program in Hospital and Health Administration, the nation's first doctoral program in hospital and health administration. The Ph.D. program requires completion of a minimum of 76 graduate semester hours, comprehensive examinations, and a dissertation. Doctoral candidates present dissertations based on original research that tests, refutes, or applies concepts or principles to a problem in the field of health care management. The program requires that doctoral candidates develop expertise in three areas of study. These areas and required courses are:

Health Services Management and Policy
60:101 Medical Care Programs
60:102 Seminar: Health Systems Management
60:202 Seminar in Contemporary Health Issues I
60:202 Seminar in Contemporary Health Issues II

Research Methodology
60:201 Health Services Research I
60:202 Health Services Research II
60:203 Independent Research Project

Advanced Statistical Techniques
79:245 Intermediate Statistical Methods
79:246 Correlation and Regression
79:248 Design of Experiments
60:205 Application of Multivariate Statistical Methods

Econometrics
60:103 Statistical Methods in Econometrics
60:220 Econometrics I
60:205 Application of Multivariate Statistical Methods

Elective

Sociology
34:100 Elementary Statistics and Data Analysis
34:200 Intermediate Statistics and Data Analysis
60:205 Application of Multivariate Statistical Methods

Minor

The student must complete at least 12 semester hours in a discipline such as sociology, political science, psychology, management sciences, or economics.

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 1951, is an interdisciplinary unit at The University of Iowa for research on health and health care. With the coordination of support from the CHSR, faculty and staff from colleges and departments 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, parasitology, medicine, and environmental and clinical medicine. Through its research activities the center promotes links among health organizations throughout the Midwest. CHSR also has frequent exchanges with professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community.

Admission

Applicants to the Ph.D. program are required to hold a baccalaureate degree (except for early admission program applicants). A 70 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 finance, 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 require 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 the program and the Office of Student Financial Aid.

Courses

80:201 Introduction to Health Care Organization
80:202 Health Services Management of Health Services in the United States: Analysis of Social, Political, Psychological, and Economic Issues That Affect Health Services, Determination of Guidelines, and Types of Health Resources Available for Financing
80:301 Health Service Administration I

Elective

80:302 Health Service Administration II

Elective

80:202 Health Service Administration III

Elective

80:204 Health Service Administration IV

Elective

80:205 Health Service Administration V

Elective

80:206 Health Service Administration VI

Elective

80:207 Health Service Administration VII

Elective

80:208 Health Service Administration VIII

Elective

80:209 Health Service Administration IX

Elective

80:210 Health Service Administration X

Elective

80:211 Health Service Administration XI

Elective

80:212 Health Service Administration XII

Elective

80:213 Health Service Administration XIII

Elective

80:214 Health Service Administration XIV

Elective
Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog

Microbiology

Head: Irving P. Cohen


Associate professors: Steven Cragg, Charles J. Cox, Charles Griner (Pediatrics), John E. Rodrigues, George V. Sอาที, Donald H. Wacker

Asst professors: Morris O. Spector (Pathology), Robert J. Testa (Biology and Science)

Degrees offered: B.S., 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, animal virology, and animal virology. Several of these specialized areas involve interdisciplinary training within and outside the department, so students receive broad experience during their course of study.

Students working for the Ph.D. degree must 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 the departmental teaching.

Incoming students choose a research supervisor 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 in another subdiscipline (e.g., The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or selections will depend on the interests of the student and the advice of the exam committee. A thesis based on the student's own research project 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) or 15 semester hours of course work in two different areas. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. A student must also 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 Brown 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 of Microbiology for general admission requirements of the Graduate College. Departmental requirements include a review and personal letter of the faculty before a student is admitted. All graduate students must have completed courses in biology, chemistry, and mathematics.

Courses

61100 Cooperative Education Internship 0-4 s.h.
61110 Medical Microbiology 1-2 s.h.
61130 Microbiology 3 s.h.
61142 Medical Laboratory 1-2 s.h.
61147 Survey of Immunology 2-3 s.h.
61149 Isolation and Identification of Pathogenic Bacteria 2-3 s.h.
61157 General Microbiology 3 s.h.
61158 Pathogenic Bacteriology 2-3 s.h.
61161 Problems in Microbiology 1-2 s.h.
61167 Seminar in Microbiology 1-3 s.h.
61169 Selected Topics in Microbiology 1-3 s.h.
61175 Clinical Laboratory II 2-3 s.h.
61181 Laboratory I 1-2 s.h.
61182 Laboratory II 1-2 s.h.
Graduate 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.

Because of the interdisciplinary nature of neuroscience, students with 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 courses 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 elective courses 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 fields: biochemistry, general physiology, 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 132:244, 132:246, 132:260, 132:284, and 132:285. 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, biochemistry, 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 neurophysiology 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 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 structural and functional chemistry and immunocytochemistry, electrophysiology, single-neuron-activated cell sorting, cellular and subcellular biochemistry, cell, tissue, and organ culture; operant and classical conditioning; molecular biology; and behavioral genetics. Admission

Individuals who want information about predoctoral and postdoctoral training opportunities in the neurosciences should contact the program office for application materials at the following address:

Neuroscience Program Office, 5460 Bowen Science Building, The University of Iowa, Iowa City, IA 52242.

Courses

132:244 Introductory I 4 s.h.

132:246 Introductory II 4 s.h.

132:248 Introductory III 4 s.h.

132:252 Research electives in Neuroscience 2-4 s.h.

132:256 Advanced Techniques in Neuroscience I 3 s.h.

132:258 Advanced Techniques in Neuroscience II 3 s.h.

132:260 Advanced Techniques in Neuroscience III 3 s.h.

132:284 Introductory course in Neuroscience 3 s.h.

132:295 Thesis 1-6 s.h.
Programs

Course Work for M.D. Students

The courses in Obstetrics and Gynecology are designed to give M.D. students a comprehensive survey of pediatrics and medicine. This is done through a sequence of didactic lectures, written assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (664 Clinical Obstetrics 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 obstetrics and gynecology. In addition to clerkships at the University of Iowa Hospitals and Clinics, these electives include rotations at Broadlawns Medical Center, Des Moines, and the Gardner Clinic, Lacombe, 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 and cares for both hospital inpatients and outpatients. Additional training is offered in prenatal clinics in Waterloo, Des Moines, Marshalltown, and Davenport. During the first two years, the resident spends two months at Iowa Methodist Hospital and Broadlawns Medical Center in Des Moines, where he or she alternates between internal medicine and Surgery.

The resident is trained in normal and abnormal obstetrics, gynecologic surgery, office gynecology, reproductive endocrinology, urogynecologic oncology, family planning, and endoscopic procedures.

Courses

664 Clinical Obstetrics and Gynecology

Clinical obstetric and gynecologic principles in special situations: pathophysiology of normal and abnormal pregnancy and gynecologic diseases as well as concepts of diagnostic techniques and therapy; special attention is paid to obstetric and gynecologic faculty planning, and techniques for care of normal and abnormal gynecologic cases.

664 Advanced Obstetric Clerkship: Iowa City

Student evaluations in patient care at Iowa City Obstetrics and Gynecology Clinic. In addition to obstetric and gynecologic care, the resident is responsible for the evaluation of patients with pelvic pain, endometriosis, infertility, abnormal uterine bleeding, preterm labor, and recurrent spontaneous abortion. The resident also follows the patient of convenience after delivery and investigations of various diagnostic and therapeutic procedures to include fetal heart rate testing, amniocentesis, kymography, and computerized fetal tracings.

Ophthamology

Acting head: Howard E. Kister

Professor: Frederick E. Bland, James J. Czerwick, Susan S. Haynes, C. Frank Judish, Howard E. Kister, Jay H. Krueger, Karl O. Olson, William E. Scott, Stanley Thompson, Thomas A. Weigert

Associate professors: Robert Balfe, James C. Fulk, David T. Tan, Stephen L. Schindler

Assistant professors: Christopher F. Black, Ronald A. Romer, Jeffrey A. Nied

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, ophthoscopy, cornea and external diseases, ophthosurgery, ophthalmic surgery, contact lens and refraction service, 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 of disease and treatment.

The residency program lasts three years, culminating in qualification for the examination of the American Board of Ophthalmology.

Facilities

The department maintains several research laboratories. The faculty is involved in research in the following areas: tumors of the eye, retinal detachment, ophthalmic surgery, ophthalmic pharmacology, and age-related macular degeneration.

The department also maintains its own eye clinic at the Broadlawns Medical Center in Des Moines. The department sponsors a biennial international symposium, the annual national conference, and a monthly statewide program of continuing education.

The department offers the opportunity to pursue a career in teaching and research.

Orthopaedic Surgery

Head: Ronald R. Cooper


Resident: Ignacio P. Prineas


Clinical professors: Richard C. Johnson, James H. Palmer

The department offers two types of postgraduate training—a five-year integrated clinical program, in which the intern and resident participate astronautically in the training of medical personnel, and a five-year or six-year program for those interested in full-time academic orthopaedic careers.
Programs

Clinical Program

Trainees enter this program directly from medical school through the National Internship Matching Program. The program consists of a one-year categorical diversified orthopaedic internship and four years in orthopaedic residency. During the internship year the trainee gains experience not only in clinical orthopaedics but also in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services. During the following four years, residents gain experience in trauma, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and toxic science as related to orthopaedics. The residents who specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical patients.

Academic Orthopaedic Program

This program includes the training described under the clinical program above. In addition, the resident chooses one or two years to research. This research may be in any field in which the resident is interested, provided it is related to the musculoskeletal system, may be done in one of the orthopaedic laboratories or in a basic science department.

Laboratories

The orthopaedics laboratories deal with problems in these major subject areas:

Biochemistry—The biochemistry of mononucleosomes and collagen, both normal and those altered in epiphyseal dysplasia and scoliosis.

Biomechanics—In conjunction with the College of Engineering, biomechanical problems of the upper extremity, biomechanics of the spine, hip, and gait, and joint replacements.

Cell biology and pathology—Ultrastuctural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.


Facilities

The department is housed in the Carver Pavilion of The University of Iowa Hospitals and Clinics and has an active service in the Veterans Administration Medical Center. Facilities include 75 beds, an outpatient clinic, an outpatient operating room, a specialty laboratory, a specialty radiology unit, and physical therapy facilities. Physicians in the outpatient clinic see approximately 125 patients per day.

Specially clinics deal with such problems as arthrosis, club feet, congenital dislocated hips, neuromuscular disease, metabolic disease, neck, back, amputation, hips, knees, hands, neuropathia, and trauma.

Approximately 1,500 major operations are performed each year under auspices of the department.

The department provides consulting service to University Hospital School, Regional Child Health Specialty Clinics, and Iowa state schools for the mentally retarded.

Courses

7612 Clinical Orthopaedic
76120 Orthopaedic Elective for Physicar
76120 Diaglsstics Elective for Physicar
76120 Advanced Clinical Orthopaedics
68000 Neuroradiological Trauma
Open only to senior medical student.
76122 Surgical Care of the Head
Open only to senior medical student.
76100 Special Studies on Cerebrovascular Disease
Open only to senior medical student.
76123 Special Studies on Cerebrovascular Disease
Open only to senior medical student.

Otolaryngology—Head and Neck Surgery

Head: Brian F. McCabe
Professor Emeritus: James Barlow, Robert M. Rumbold, Lee A. Wheler, William E. LaValle, Bruce F. McCabe, Ralph L. Martin, William H. Otto, D.C., Sprentzfeld, Bruce R. Van Der Tan
Associate professors: Bruce J. Cazzulli, Richard S. Tyler
Associate professors emeritus: Bruce E. Smith
Assitant professors: Dennis M. Cowley, Michael D. Woerner, Richard Vande
Research activities: Charles R. Lanning, Arnold J. Moore, Nancy J. Vanden
Clinical associate professors: Thomas J. Bonica, Carl E. Neitz, Guy H. McFarland

Clinical assistant professor: Peter L. Hilt
Degree offered: M.S.

The department provides one of the oldest and most active otolaryngology—head and neck surgery training programs in the world. Currently it has a full-time faculty of 13, including several members from plastic surgery, audiology, speech pathology, and otolaryngology—head and neck surgery.

The department's major objective is to provide a high-level instructional program in otolaryngology—head and neck surgery for medical students and residents.

To maintain a teaching program, the department's faculty and staff carry a large patient load in head and neck surgery, head and neck plastic reconstructive surgery, facial trauma, cranial-base and cranial defects (excluding cerebral implant), and all the areas usually considered otolaryngology.

There are eight divisions in the department that make this program comprehensive: otology and neurotology, rhinology, and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, rhinology, pediatric otolaryngology, craniofacial defects, speech pathology and audiometry, and research.

One major problem of the department is to foster research programs designed to yield new knowledge in the field and provide models for student and resident research.

All resident faculty members participate in research and all residents are required, as part of the resident training program, to design, conduct, and report on a research project before coming to the program of study. In addition, there are several large-scale research programs within the department in vestibular neurophysiology, clinical and functional studies, ear disorders, and other cranial defects; head and neck oncology; cochlear implants; neurosurgical and neurophysiological studies, cranio-maxillofacial reconstruction, neuro-axial surgery, neuro-anatomical neurochemistry; bone resorption in ear diseases; and otolaryngology of the inner ear, and psychobiology.

Several of these research programs receive federal and private financial support.

Graduate Program

The graduate program in otolaryngology is in accord with the requirements of the Association of Otolaryngology.

The program consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first three and one-half months of residence.

After passing an oral or written examination, the student enters the clinical
Pharmacology

Head: Dr. Michael Coon.


Assistant professors: Ross D. Feinman, Mark J. Goldberg.

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 biochemistry, pharmacology, and toxicology, central nervous system and anesthetic pharmacology, neuroendocrinology, 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 Neuronal and Behavioral 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 begin in JULIO Drugs: their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions concerning the personal 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.

Prerequisites 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 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 increased emphasis on and training in the science of clinical pharmacology for residents in the various clinical specialties.

Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the first year is mandatory unless specifically waived by the Department of Pharmacology faculty.

Any of these course requirements may be waived at the request of the training or his or her adviser and the departments faculty agree that the trainee has met them satisfactorily at a prior level.

17-203 Pharmacology Research
17-204 Pharmacology Seminar
17-205 Biomedical Health Sciences
17-210 Special Topics in Pharmacology
17-212 Toxicology
17-215 Clinical Toxicology
17-280 Clinical Pharmacology and Therapeutics Lecture Series

The courses may audit 17-105 Pharmacology for Health Sciences: Medical, and may take additional courses in its 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:

17-100 Chemistry
17-102 Medical Physiology
17-105 Pharmacology for Health Sciences: Medical
43-101 Biometrics and Bioassay
17-103 Pharmacology and Toxicology
17-201 Biochemical Pharmacology
17-203 Pharmacology Research
17-204 Pharmacology Seminar
17-207 Pharmacology of Excitable Cells

The student must complete at least one additional course in his or her area of interest, and individual faculty research advisors may require more than one.

There is no department foreign language requirement.

Students are encouraged to obtain a maximum of laboratory research experience during the first two years.

After successful completion of the Ph.D. preliminary examination, usually at the end of the second year, the student begins or continues his or her Ph.D. thesis research. Thesis research usually requires two years beyond the preliminary examination. A Ph.D. comprehensive examination (written and oral) is given at the end of the third year. Satisfactory preparation and oral defense of the thesis complete the program.

Financial Aid

Financial support is available for all predoctoral and postdoctoral students in pharmacology.

Courses

17-100  \textit{Chemical Pharmacology}

Dependent (2 credits)

17-200  \textit{Special Topics in Pharmacology}

Dependent (2 credits)

17-201  \textit{Biomedical Health Sciences}

Dependent (2 credits)

17-203  \textit{Pharmacology Research}

Dependent (2 credits)

17-204  \textit{Pharmacology Seminar}

Dependent (2 credits)

17-205  \textit{Special Topics in Pharmacology}

Dependent (2 credits)

17-210  \textit{Biometrics and Bioassay}

Dependent (2 credits)

17-212  \textit{Toxicology}

Dependent (2 credits)

17-215  \textit{Clinical Toxicology}

Dependent (2 credits)

17-280  \textit{Clinical Pharmacology and Therapeutics Lecture Series}

Dependent (2 credits)

The courses may audit 17-105 \textit{Pharmacology for Health Sciences: Medical}, and may take additional courses in its or other courses.

17-206 \textit{Mechanisms of Action and Duration of Drugs}

Dependent (2 credits)

17-207 \textit{Special Topics in Pharmacology}

Dependent (2 credits)

17-208 \textit{Pharmacology for Health Sciences: Medical}

Dependent (2 credits)

17-213 \textit{Pharmacology for Health Sciences: Medical}

Dependent (2 credits)

17-214 \textit{Biostatistics}

Dependent (2 credits)

17-215 \textit{Clinical Toxicology}

Dependent (2 credits)

17-216 \textit{Clinical Pharmacology and Therapeutics Lecture Series}

Dependent (2 credits)

The courses may audit 17-105 \textit{Pharmacology for Health Sciences: Medical}, and may take additional courses in its or other courses.
Graduate Programs

The master’s program offers a degree with emphasis in community biostatistics, biometry, or community health. Admission to the program is limited to those who already are health professionals. The Ph.D. program is available with an emphasis on 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 graduate course work will be dismissed if their grade-point average drops below a 3.0.

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.S. or an M.S. in Planning and an M.S. in Preventive Medicine or 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 a division of the Agricultural Medicine Research Facility on the Osage Campus. Research, teaching, and extension activities concern the safety and health problems of Iowa agricultural and agricultural workers. Area of study include environmental toxicology, comparative medicine, industrial hygiene, occupational medicine, the Accident Prevention Laboratory, and the Iowa Pesticide 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 15 for spring semester, and May 1 for the summer session. These deadlines apply both to University of Iowa and to non-students of University of Iowa.

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, if required by the University Foreign Admissions Office, non-citizens must complete the TOEFL. Tests of English Language (a minimum combined score of 500 is acceptable for non-native speakers 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 be able to 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 want to work toward an advanced degree may be admitted on "professional improvement" status.

Courses

400 Cooperative Education Internship 0 a.h. An opportunity for students to pursue a career in environmental health professions.

365 Sea and the Environment 3 a.h. Human ecology in relation to potential and documented effects of biological, chemical, physical, and occupational hazards on plant and animal life. Three hours lecture and two hours laboratory weekly, or equivalent.

463-464 Dynamics of Health 3 a.h. Survey of major diseases of man, in Western culture, with emphasis on causation, pathogenesis, epidemiology, methods of disease investigation, and prevention. Offered fall semesters.

366 Preventive Medicine 3 a.h. Introduction to epidemiology, clinical preventive medicine, occupational health, and health policy. Survey of diseases and medical conditions which are preventable or amenable to control. One hour lecture and two hours laboratory weekly, or equivalent.

463-464 Health Behavior 3 a.h. Survey of major diseases of man, in Western culture, with emphasis on causation, pathogenesis, epidemiology, methods of disease investigation, and prevention. Offered fall semesters.

463-464 Biostatistics 3 a.h. Basic methods of the collection and survey of data and their applications to the making of decisions and the testing of hypotheses. One hour lecture, one hour laboratory per week, or equivalent.

366 Biostatistics 3 a.h. Survey of the basic principles and methods of statistical analysis and computer application in medicine and public health. Three hours lecture and laboratory per week, or equivalent.

463-464 Principles of Epidemiology 3 a.h. Design and analysis of clinical trials and cohort studies. Historical and current emphasis on descriptive and analytic epidemiological studies. Lectures on human biology with respect to environmental health. Three hours lecture and one hour seminar per week, or equivalent.

366 Principles of Biostatistics 3 a.h. Introduction to the design, analysis, and interpretation of biological data, including general methods of estimation, simple and multiple regression, and correlation. Three hours lecture and laboratory per week, or equivalent.

463-464 Design and Analysis of Experiments 3 a.h. Design and analysis of experiments, including randomization, correlation, analysis of variance, and the use of non-parametric tests. Three hours lecture and laboratory per week, or equivalent.

366 Biostatistics 3 a.h. Techniques of constructing and analyzing sample surveys, including general methods of estimation, simple and multiple regression, and correlation. Three hours lecture and laboratory per week, or equivalent.

463-464 Introduction to the Design of Samples 3 a.h. Introduction to the design of samples, including randomization, correlation, analysis of variance, and use of non-parametric tests. Three hours lecture and laboratory per week, or equivalent.

463-464 Biometric and Bioassay 3 a.h. Bioassay and biometric interpretation of experimental biological data, including student's t-test, analysis of variance, and chi-square tests. Three hours lecture and laboratory per week, or equivalent.

460-461 Environmental Epidemiology 3 a.h. Application of dose-response models to indoor and outdoor environmental exposures. Topics include national and state regulations, exposure assessment, health effects of environmental exposures, and the role of epidemiology in the regulation of environmental health hazards. Three hours lecture and laboratory per week, or equivalent.
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 Oadville, 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, developmental psychiatry, neurochemistry, neurophysiology, and psychosocial aspects of behavior.

Many opportunities are available for students and residents to participate in research. The basic science areas of neurochemistry, neurophysiology, 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
73:146 Psychology for Physician Assistant Students
73:147 Psychiatry Review for Physician Assistant Students
73:220 Research in Psychiatry
73:221 Introduction to Research in Clinical Psychiatry
73:233 Principles in Psychiatry

Courses Open Only to Medical Students
73:01 Elective Psychiatry
73:148 Clinical Psychiatry
73:151 Assessment of Psychiatric Patients
73:221 Introduction to Medical Psychiatry
73:250 Psychiatric Hospital, Des Moines
73:251 Psychiatric Hospital, Iowa City
73:252 Child Psychiatry, Psychiatric Hospital
73:371 Emergency Room Psychiatry
73:372 Hospice of Iowa City
73:373 Pediatric Psychiatry, Psychiatric Hospital
73:378 Research Psychiatry
73:420 Criminal Psychiatry, Iowa Security Medical Facility, Oadville
73:531 Research Psychopharmacology
73:532 Child Psychiatry, Psychiatric Hospital
73:533 Psychiatric Epidemiology

Classes including biostatistics, epidemiology, advanced research methods, and computer science.

Radiation Biology
Director: James W. Osborne
Program Directors: Frank Furst-Ho Feng, Richard L. DeCorste, James C. Ethridge, David H. Harvey, Jenny W. Osborne

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 Iowa State University.

The Radiation Research Laboratory has a variety of radiodetection detectors, including gamma and liquid and solid scintillation counters, and a small animal whole-body counter.

The laboratory also has ultraviolet spectrophotometers, various types of equipment for chromatography and electromicroscopy, 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 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 to those appointed as faculty 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. Expertise 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 maternal 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 its kind 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, gastrointestinal, surgical pathology, general surgery, transplantation, organ preservation, cardiovascular surgery, and neurosurgery and oncology.

Courses
751 Basic Emergency Skills
1 h.b.

252 Vascular Research
1 h.b.

351 Clinical Surgery
4 h.b.

352 Advanced Clinical Surgery 4 h.b., students become active participants in ward rounds, in cardiac, liver and gastrointestinal surgery, and other specialty services.

75100 Emergency Room Director for Physicoles Assistant Student

75100 Surgery Center for Physicians Assistant

75206 Advanced Clinical Surgery 3.5 h.b.

75210 Advanced Surgical Intensive Care

75211 Emergency Room on Campus

Note: Procedures and courses are subject to change and may be cancelled if enrollment falls below minimum levels.

Urology
Head: Richard M. Williams


In addition to the areas of urinary tract stone, urinary tract infection, diagnostic urology, and the results of urinary tract function, urology also includes urological nephrology, urological oncology, uroradiology, oncology, and pediatric urology.

The Department of Urology is The urology 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.

In the first year of the M.D. program, the department participates with several of the basic science departments in teaching the relationship of urology to the basic sciences. The department participates with the Department of Microbiology in the teaching and research in immunology as it relates to transplantation and cancer.

The Department of Urology participates actively in 501113 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers lectures illustrating the techniques and demonstrations concerning the diagnosis and treatment of diseases involving the genitourinary tract in the male and the urinary tract in the female and child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, radiology urology, urologic oncology, and the entire field of urology. In the third and fourth years of the curriculum in medicine, the department offers basic urology, and in the fourth year's offers advanced elective courses of intensive study in these areas.

The department offers continuing education throughout the year for urology and family practice resident. These activities are conducted by the senior staff, whose interests include pediatric urology, reconstructive urology, urologic oncology, urologic tract stone, and prostatic diseases.

The first year has earned international recognition for its studies of prostatic diseases. The urological laboratories are active and offer instruction in experimental oncology and cellular immunology.

Courses
70106 Clinical Urology 2 h.b.

70110 Advanced Clinical Urology 2 h.b.

70111 Advanced Surgical Urology 2 h.b.

70112 Special Topics in Urology 3 h.b.

70113 Urology Research Conference 3 h.b.

70114 Urology on Line 1 h.b.
79:108 Urological Oncology

Invasive clinical experience in diagnosis and management of all types of genitourinary malignancy.
Participation in departmental current urology seminar.
4 hrs.

79:114 Male Endourology and Reproductive

As above but focused on male urology.
3 hrs.

79:117 Clinical Fellowship in Urology

Venezuela Administration Medical Center.
3 mos.

79:120 Urology Elective for Physicians

4 hrs.

79:999 Special Studies off Campus

Individual project, directed by a pediatric urology faculty member.
4 hrs.

Bowen Science Building
College of Nursing

Dean: Geraldine Fison
Dean emerita: Myra Aylott

Assistant dean, undergraduate students and community affairs: Eleanor Mclntosh

Assistant dean, clinical practice: Sally Mathis

Assistant dean, nursing education: Marie Hackett

Director, nursing research development and utilization: Elizabeth Rugg

Professors: Kathleen Aylott, Patricia Beek, Elizabeth Brue, Geraldine Fison, Sally Mathis, Rosemary McEneny, Teri Tipton-Roberts, Barbara Thorne

Professor emeritus: Eva Erickson, Hope Solonese

Associate professors: Kathleen Rockwell, Teri Clark, Martha Craft, M. Patricia Donovan, Jeanne Jard, Philpa Frank, Rita Francioli, Melanie Freul, Rose Marie Friedrich, Laura Hart, Leslie MacNeil, Eleanor Mclntosh, Joanne O'Connor, Sarah Powell, Jean Rees, Elizabeth Reavar

Associate professor emerita: Christy Beers, Geraldine Rust, Marjorie Goul, Nancy Antkiewicz, Marjorie Lipton, Anna E. Overland, Elta M. Hauser

Assistant professors: Gloria Holst, Martine LeBlanc, Margaret Lipton, Kathleen Cromwell, Judith Deans, Myra Frank, Elyse Clark, Nancy Hardy, Marie Hackett, Marjorie Reed, Kathleen Kelly, Laverne Carey, Robert Kuo, Joan Lakin, Senta Lovly, Marlene Maio, Frances Mihal, Laverne Ralston, Beverly Salter, Annette Scholtz, Mary Stewart-Hodgson, June Yang

Assistant professor emerita: Joyce Anna, Mary Ruck, Pearl Zornicka

Instructors and instructors: Rajam Abebe, Lucinda Andrews, Mary Aquilina, Doreen, Darci, Darci Arberman, Teresa Beeler, Mary Ann Boulton, Timothy Boivin, Marita Borden, Nancy Bouchard, Kathleen Clark, Patricia Clinton, Mary Cornwell, Janet Cope, Kenneth Cope, Dawn Deor, Linda Emmerman, Mary Kay Flattery, Rathbun Green, Doreen Gourley, Nita Grady, Anne Hartmann, Virus Hervey, Sharon Ives, William Jervis, Barbara Kalevicius, Susan Lefkowitz, Rebecca Marks, Anna Mclntyre, James Mcllheny, Sheryl Miller, Paula Moody, Sue Mortimer, Judith Murray, Margaret Markward, Mary McLean, Anne Mclntyre, Fiona Mackay, Margaret Mathias, Gregory Price, Pamela, Joanne Naff, Karen Needham, Susan Weber, Mary Weber, Kari, Turbitt

Assistant professors-in-residence: Joanne Bechtel, Anne Beach, Gregory Clancy, Karen Gelish, Louise Jorn, June Kargus, Judy Payne, Carla Reckelt, Christine Randall, Kay Weiler

Degrees offered: B.S.N., M.A.
The College of Nursing is an integral part of The University of Iowa Health Center, sharing in and contributing to teaching, research, and patient-care resources that have earned international recognition. The University health center provides an unusually rich setting for pre-service preparation in nursing — for the academic, educational and clinical resources that are needed to educate nurses are available on or near the campus. Faculty and students can participate fully in the life of the university 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, schools, industries, the Peace Corps, the World Health Organization, the Red Cross and the armed forces, the Peace Corps, the World Health Organization, the Red Cross and the armed forces. Prospective nurse students 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 and university 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 essential 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 of a highly organised curriculum, social, cultural, and recreational activities of a highly diverse and active campus community. Nursing is no less than in others' pursuits, a college or university background qualifies 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 120-semester-hour program consists of 76 semester hours of liberal arts General Education Requirement courses and 44 semester hours of mathematics, statistics, 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 in nursing as a service rendered outside hospitals and to persons other than the acutely ill.

Approaches to the College of Nursing

Health 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 the University of Northern Iowa, and Upper Iowa University, and Upper Iowa University. Students at Morningside, Loras, Luther, Clarke, Simpson, and Wartburg colleges.

Participating community colleges are located in Ottumwa, Mason City, Marshalltown, Muscatine, Clinton, Iowa Falls, Arkley, 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 College of Nursing.

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. In addition, 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 with a multidisciplinary approach to the study of aging.

The program consists of a series of courses in sociology, psychology, and social work.

The course is offered as a part-time program.

To participate in the program, students must maintain a cumulative grade-point average of 3.0 or higher.

The program is open to students majoring in nursing and in the College of Liberal Arts.

Honors Program

Students in the College of Nursing may be eligible for invitation to the College of Nursing Honors Program at the completion of the first clinical nursing course. The course grade-point average of 3.5 or higher and a cumulative grade-point average of 3.25 or higher is required.

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.

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; plus 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 admissible 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.

Prerequisite Clinical
Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work:
Rhetoric—4 semester hours (may be satisfied by testing for advanced standing); a student who has earned 6 semester hours of credit in English composition, may complete the speech component after admission.
Mathematics—three years of high school math or a score greater than or equal to 26 on the mathematics battery of the ACT, or completion of a college course in math comparable to or more advanced than intermediate algebra (22M:2).
Physics—one-half year of high school physics or course equivalent; if physics is not offered at the college level it may be included in the 38 semester hours required for admission.

American College Tests
All applicants for admission to The University of Iowa must complete the American College Tests. For information on the Testing Program, contact the 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 (5 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 3 s.h.
Theory and Practice of Nursing
Supporting course 3 s.h.
Total 12 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.
or
96:226 Adult Health Nursing I 4 s.h.
96:234 Community/Family Health Nursing 4 s.h.
9:20 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 3 s.h.
96:223 Child Health Nursing II 4 s.h.
or
96:227 Adult Health Nursing II 4 s.h.
or
96:235 Community/Family Health Nursing II 4 s.h.

96:246 Curriculum Development in Nursing Education 3 s.h.
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
or
96:268 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
96:269 Thesis 2 s.h.
Total 12 s.h.

Spring Semester
96:260 Professional Seminar: Issues in Nursing 2 s.h.
96:247 Nursing Education: Process, Roles, and Strategies 3 s.h.
or
96:261 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
96:268 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
Supporting Course 3 s.h.
96:269 Thesis 3 s.h.
Total 12 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 2.3 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 a 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 course work 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 enroll as a graduate student 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. A maximum of 12 semester hours, or a maximum of 36 quarter hours, 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 nonaccredited, short-term programs for registered nurses. Programs are scheduled on campus 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 CEUs, and is accredited by the National Accreditation Board of the American Nurses Association.
Electives

The current Schedule of Courses lists nursing electives being offered. Courses vary from semester to semester.

96.89 Thesis

am

96.160 Human Structure and Function—A

3 sem.

Provides study to identify human tissues, cell types, and physiological functions, to identify their functions, and characteristics. Includes necessary components of microscopic evaluation of normal and abnormal tissues. Emphasizes individual acids, and describes the basic anatomy in relation to the human organism and its function. CCD, lab required. Credit only for non-repeating students.

96.161 Human Structure and Function—B

3 sem.

Provides study to identify structure, function, and characteristics of major and functional systems of organs and communication in humans. Emphasis on relationships between functions and maintenance (grow and maintain) of all organs, and describe mechanisms for repair and regeneration of damaged tissues. Traces historical development of human body systems. Credit only for non-repeating students.

96.171 Health and Culture—Diversity

2 sem.


96.174 Transactional Nursing Health

3 sem.

Stress of advanced perspectives on mental health and wellness. Focuses on mental health and wellness with emphasis on the mental health of the nursing student. Emphasis on mental health and wellness with emphasis on the mental health of the nursing student. Emphasis on mental health and wellness with emphasis on the mental health of the nursing student. Emphasis on mental health and wellness with emphasis on the mental health of the nursing student. Emphasis on mental health and wellness with emphasis on the mental health of the nursing student.

96.175 Financial Management for the Nurse

3 sem.

Uses of financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.180 Community Health Nursing

2 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.190 Clinical Psychopharmacology

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.191 Child Health Nursing

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.292 Mental Health Nursing

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.293 Substance Abuse Nursing

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.294 Nursing Administration

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.295 Nursing Management Process

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.297 Palliative Care Nursing

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.298 Clinical Specialization: Psychopharmacology

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

96.299 Clinical Specialization: Pediatrics

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

97.103 Community Health Nursing

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

97.104 Clinical Psychopharmacology

3 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

98.105 Community Health Nursing

2 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

98.106 Clinical Psychopharmacology

2 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.

99.200 Community Health Nursing

2 sem.

Focuses on the role of the community health nurse in promoting health, preventing illness, and maintaining the well-being of individuals, families, and communities through the provision of health care services. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse. Emphasizes the importance of understanding financial management for the nurse.
The pharmaceutical 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 of 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, toxicology, 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, such as the Public Health Service, Veterans Administration, Food and Drug Administration, and the armed forces.

Many pharmacists assume administrative positions in industry, including manufacturing, research and development, consultation, planning, and advertising. Many are employed in pharmaceutical sales as medical service representatives. Pharmacy training is specially valuable to these men and women, who are responsible for acquiring pharmaceutical knowledge, and other pharmacists with degrees in pharmacy. 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 professional training and education in a number of areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, 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, then in the College of Liberal Arts at The University of Iowa or at any accredited community or liberal arts college, and 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 6 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 licensing 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 total cumulative grade-point average of at least 2.0.

For rules and regulations concerning academic academic policy, pass-fail, grades, credit by examination, maximum schedule, second-grade-only option, waiver of substitution of courses, cancellation of registration, drop date, and correspondence study, see the "College of Pharmacy" section in the current Schedule of Classes.

**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 elective. 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**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>46:13 Pharmacy Math</td>
<td>46:14 Pharmacy Orientation</td>
</tr>
<tr>
<td>37:3 Principles of Animal Biology</td>
<td>37:3 Principles of Human Anatomy</td>
</tr>
<tr>
<td>4:101 Analytical Quantitative Analysis</td>
<td>4:99:01 Principles of Human Anatomy</td>
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<tr>
<td>Total</td>
<td>Total</td>
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</tbody>
</table>

**Total** 15 s.h. 15 s.h.

**Second Semester**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:14 Pharmacy Orientation</td>
<td>46:15 Pharmacy Orientation</td>
</tr>
<tr>
<td>4:122 Organic Chemistry I</td>
<td>4:141 Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>4:99:01 Principles of Human Anatomy</td>
<td>*GenEd Electives</td>
</tr>
<tr>
<td><strong>GenEd Electives</strong></td>
<td>Total</td>
</tr>
<tr>
<td>4:99:01 Principles of Human Anatomy</td>
<td>15-17 s.h.</td>
</tr>
</tbody>
</table>

*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**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>46:23 Pharmacodynamics I</td>
<td>55:148 Biochemistry for Pharmacy Students</td>
</tr>
<tr>
<td>61:112 Health Sciences Microbiology</td>
<td>62:112 Health Sciences Microbiology</td>
</tr>
<tr>
<td>*GenEd Electives</td>
<td>*GenEd Electives</td>
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<tr>
<td>General Education Electives</td>
<td>General Education Electives</td>
</tr>
<tr>
<td>4-6 s.h.</td>
<td>4-6 s.h.</td>
</tr>
</tbody>
</table>

*20-30 s.h.
Graduate Programs

The College has graduate programs in each of its four academic divisions. Masters of Science and Doctor of Philosophy programs are available in pharmacology, medicinal chemistry, natural products, and pharmaceutical and industrial sciences. 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, as well as for teaching in medical schools, 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 other requirements are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are determined by individual departments within the College of Pharmacy.

Doctor of Pharmacy

The Doctor of Pharmacy (Pharm.D.) program is a two-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 objective of the program is to provide the healthcare system with highly qualified pharmacists. Prospective students may obtain specific information on the program by writing to The University of Iowa College of Pharmacy, Iowa City, Iowa 52242.

Facilities

The College has three departmental facilities, the main campus in the University of Iowa's main library. The college's library includes the College of Medicine, Nursing, and Dentistry. The library is open during regular business hours. The library has a wide range of resources to support undergraduate and graduate students. The library also has a Learning Research and Service Center (LRIC), which provides study areas and study rooms. Additional resources are available online and in the library's collection. The LRIC has several computer terminals available to support the research and study needs of the university community.
46.177 Clinical Hospital Pharmacy

Pharmacy Dietitian

Instructions and pharmacy experience in various aspects of hospital pharmacy: preparation and evaluation of pharmaceutical products, dietary consultation, nutrition counseling, and drug-related problems. Pharmacist: P4 standing and consent of instructor.

46.178 Psychiatric Clerkship

Lecture and laboratory course on national use of psychotropic drugs in treatment of psychiatric disorders. Pharamacist: P4 standing and consent of instructor.

46.180 Neurology Clerkship

Pharmacotherapeutics and pharmacological considerations of neurologic clinical pharmacy practice.

46.181 Surgery Clerkship

Lecture and clinical experience in pharmacotherapy and pharmacokinetics of a general surgery unit. Pharmacist: P4 standing and consent of instructor.

46.182 Clinical Pharmacy Practice Clerkship

Includes pharmacological basis for drug therapy, pharmacokinetics, stability control, and clinical application of multiphase medications. Pharmacist: P4 standing and consent of instructor.

46.183 Internal Medicine Clerkship

Students have daily patient contact in general medicine, including internal medicine, cardiology, and the first and second year rotations in internal medicine, cardiology, nephrology, and rheumatology. Pharmacist: P4 standing and consent of instructor.

46.184 General Practice Clerkship

Selection related to health care facilities. May be repeated. Pharmacist: P4 standing and consent of instructor.

46.185 Geriatric Pharmacy

Pharmacotherapeutics and pharmacological components of geriatric clinical pharmacy practice.

46.186 Therapeutics I

Introduction to selected diseases and their treatment. Clinical pharmacology, principles of drug therapy, advanced toxicology, antimicrobials, and use of reference sources. Pharmacist: 72 hours, 46.031, 72.03, and 820.51.

46.187 Therapeutics II

Pharmacoeconomics of diseases concerning therapy in chronic illness, use of selected drug-agents in treatment, selection of therapeutic agents and use of references books. 46.031 and 72.03 reading.

46.188 In-Dwelling Devices: Use and Application of Clinical Pharmacy

46.189 Clinical Pharmacology

Advanced clinical pharmacy practice: emphasis on critical care, infectious diseases, and renal pharmacology. Pharmacist: P4 standing and consent of instructor.

46.190 Community Pharmacy Practice

Practitioner should be able to assess the needs of the community pharmacy and develop a service plan that meets the needs of the patients. Pharmacist: P4 standing.

46.191 Seminar in Clinical Pharmacy

Current national problems affecting pharmacy practice. Pharmacist: senior standing.

46.194 Pharmacology Applications in Pharmacy

A discussion of the elements of an instructional laboratory in pharmacology, including basic learning, applications, and use of computer microcomputer systems. Pharmacist: consent of instructor.

46.195 Introduction to Research Methods

Scientific inquiry, experimental design, data collection, and statistical methods used in the study of health sciences and health care professions. Pharamacist: P4 standing and consent of instructor.

46.196 Advanced Problems in Pharmaceutical Sciences

Independent study of problems in pharmaceutical microbiology; in the development of laboratory exercises and literature review required.

Graduate Pharmaceutical Socioeconomics

46.221 Drug Development and Marketing

Introduction to the pharmaceutical industries and the processes of drug development and marketing. Pharmacist: P4 standing and consent of instructor.

46.222 Pharmaceutical Economics

Principles of management of the pharmaceutical industry and the economic aspects of various aspects of the health care system. Use of economic analysis, methods, and models in medicine, the environment, and society.

46.223 Pharmaceutical Sociology: Consumer

Assessed readings and discussions of recent research on pharmaceutical industries. May be repeated. Pharmacist: P4 standing.

46.224 Pharmaceutical Sociology: Research Methods

Scientific inquiry, experimental design, data collection, and statistical methods used in the study of health sciences and health care professions. Pharamacist: P4 standing and consent of instructor.

46.225 Medicinal Chemistry: Natural Products

Selected topics in medicinal and natural products. Pharmacist: consent of instructor.

46.226 Medicinal Chemistry: Natural Products

Overview of the U.S. health care delivery system, with emphasis on the key elements of the hospital pharmacy, pharmaceutical care, and the impact of pharmacotherapy on hospital pharmacy practice. Pharmacist: 360 hours or equivalent. Complementary: TMC 496.

46.227 Pharmacotherapy: Core Topics


46.228 Community Pharmacy Practice

Pharmacist: consent of instructor.
46.182 Pediatrics Clerkship
Advanced applications of clinical pharmacology/therapeutics principles to optimize patient management in the newborn and adolescent pediatric population. Prerequisites: Pharm D. standing and consent of instructor.

46.183 Pharmacokinetics Clerkship
Indications and practical application in clinical management of selected therapeutic agents. Prerequisites: Pharm D. standing and consent of instructor.

46.184 Forensic Clerkship
Advanced applications of pharmacokinetics and pharmaceutical management in the care of regulated and unregulated therapeutic patients using a computerized data model. Prerequisites: Pharm D. standing and consent of instructor.

46.185 Neurology Clerkship
Lecture and advanced clinical practice of pharmacotherapy related to neurological diseases. Prerequisites: Pharm D. standing and consent of instructor.

46.186 Surgery Clerkship
Advanced applications of therapeutic skills necessary for the pharmacotherapy management of general surgical patients. Prerequisites: Pharm D. standing and consent of instructor.

46.187 Clinical Nuclear Pharmacy Clerkship
Advanced clinical instruction in the use of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological intervention in nuclear medicine studies, and radiopharmaceutical drug information. Prerequisites: Pharm D. standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

46.188 Dental College Clerkship
Advanced clinical applications dealing general and local anesthesia, conscious sedation and post care, implant and regenerative therapy, and participation in management of medically complicated patients. Prerequisites: Pharm D. standing and consent of instructor.

46.189 Hospital Pharmacy Survey
2 a.h.
Clinical and pharmacy practice in a variety of settings. Laboratory. Morbidity and mortality of hospital drug procurement, inventory, and distribution. Pharmacy practice. Pharmacy service systems. General organization and management of drug service. Professional activities. Prerequisites: Pharm D. standing and consent of instructor.

46.190 Advanced Clinical Pharmacy
Application of principles of pharmacology and therapeutics in the care of selected patient populations. Seminar and practical experience within the major clinical settings of the hospital. Prerequisites: Pharm D. standing and consent of instructor.

46.191 Clinical Pharmacy: Drug Literature
2 a.h.
Literature search, pharmacy practice, including clinical trials. Emphasis on techniques of evaluating biomedical literature, bibliographic, computer, manuals, biobase, new studies, etc. An understanding of analytic methods is necessary. Prerequisites: consent of instructor.

46.192 Hospital Pharmacy: Pharmatech
Theory and application of principles, paring, and testing of parenteral drug forms.

46.193 Hospital Pharmacy: Techniques
Design, manufacture, and evaluation of radiopharmaceutical standards for nuclear pharmacy practice. Administration and special functions in nuclear pharmacy service. Nuclear pharmacy is drug preparation. Prerequisite: consent of instructor.

46.194 Clinical Pharmacotherapeutics
Contemporary pharmacotherapy is selected disease states. Discussion from current literature emphasizing drug design and drug therapy. Prerequisites: 46.111 or consent of instructor.

46.195 Clinical Hospital Pharmacy: Seminar
Consent
Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.

46.196 Hospital Pharmacy: Directed Study in Pharmacotherapy
1-2 a.h.
Supervised study in specialized areas of practice relevant to hospital pharmacists. Prerequisites: Consent of instructor.

Library and Information Science

46.121 Pharmacy: Drug Literature
2 a.h.
Literature search, pharmacy practice, including clinical trials. Emphasis on techniques of evaluating biomedical literature, bibliographic, computer, manuals, biobase, new studies, etc. An understanding of analytic methods is necessary. Prerequisites: consent of instructor.
Continuing Education

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to "render a larger 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 goals of several departments and colleges of the University and by bringing the University generally into direct contact with the citizen." 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 42 departments within the University. Students may enroll at any time and have nine months in which to complete work. A catalog including course listings, graduation requirements, and forms may be obtained from Guided Correspondence Study, W400 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 public 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, W400 Seashore Hall.

Saturday and Evening Classes

The Center for Credit Programs offers credit courses for part-time undergraduate, graduate, or classified 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, W400 Seashore Hall.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies (B.L.S.) degree is designed to serve adults who wish to attend as full-time, on-campus students. The program has no residency requirement. Credit toward the degree may be earned through correspondence study, Saturday and evening courses, off-campus courses, and television and telebridge courses. Course work from community and private colleges may be applied toward the degree. Students may apply for any course at the University of Iowa. The Bachelor of Liberal Studies is awarded by the College of Liberal Arts. For more information contact the Center for Credit Programs, W400 Seashore Hall.

Center for Conferences and Institutes

The center conference center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for noncredit 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 otherwise full-time students but 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 special programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The mainstreaming of appropriate resources, coupled with the professional planning and execution of conferences and other short-term training programs, helps to ensure the success of the educational objectives specified for each program.

The director of conferences is responsible for approving 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 community are expected to schedule these activities through the center conference 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 courses 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 KX-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcasting that extend the resources and activities of the University. The broadcast schedule consists of educational, cultural, and informational programming not generally available elsewhere. An affiliate of National Public Radio (NPR), WURI contributes program material to the national network and broadcasts more than 250 non-commercial radio stations. The main studios and offices are located in 3300 Engineering Building, and a live copy 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 citizen groups interested in civic 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, are also 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 films, slide, filmstrip, eipaper, and overhead projectors; portable projection screens; audio tape recorders; record players; portable public-address systems; and display devices (Blackboards, 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 service;

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 need arises, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies. Satellite centers currently include the Medical Audvisual Center, Dental Audvisual Center, Nursing Audvisual Center, the Educational Media Laboratory, and the Music Audvisual Center.
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The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Heights and High School, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of nine members. The board membership is as follows:

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Psychiatric Hospital
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University Hospital School
Director: Alfred Bessy
Student Health Services
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Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas L. Brown
University of Iowa Foundation
President: Darrell D. Wyckoff
Zoltek, Eric E., B.M. Georgetown School of Music, 1976, Ph.D. Iowa 1979, assistant professor, School of Music, 1982.


Admission Rules Common to the Three State Universities

720-1. (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 accredited 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 tryout 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 schools. The options for conditional admission or summer tryout enrollment may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of nonaccredited high schools will be considered for admission in a manner similar to applicants from accredited high schools, but additional emphasis will be given to grades obtained 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 so to the extent that it states and shows their academic success and preparatory study 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. (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 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 tryout 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 and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under the early admission suggestion will not be considered for admission until information concerning the reason for the suspension has been received from the college administering the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

720-1. (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 (CPA). 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 (CPA) 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.

1.2(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 of a remedial, vocational, or technical nature, or credit in courses or programs in which the prerequisite is the credit 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 one hundred regardless of the number of credit hours required for that degree.

Iowa Administrative Code: Board of Regents
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 person. 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 who is domiciled 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 considered in support of a claim for resident classification: (1) Residence in Iowa for twelve consecutive months, and be primarily in activities other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought; (2) Residence upon Iowa sources for financial support; (3) Domicile in Iowa of persons legally responsible for the student; (4) Former domicile in the state and maintenance of significant connections therein while absent; (5) Ownership of a home in Iowa; (6) Admission to a licensed practicing profession in Iowa; (7) Ownership of an offer of permanent employment in Iowa. (8) Continuous presence in Iowa during periods when not enrolled as an active student.

Other factors indicating intent to make Iowa the student's domicile will be considered by the universities in classifying the student.

f. The following circumstances, standing alone, do not constitute sufficient evidence of domicile to affect classification of a student as a resident under these regulations: (1) Voting or registration for voting; (2) Employment in any position nominally filled by a student; (3) The lease of living quarters; (4) Automobile registration. (5) Other public records, for example, Social Security and marriage records, Iowa driver's license.

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 in which a dependent 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 domicile while living in another state or country will prove who they have not acquired a domicile in another state. (2) they have maintained a continuous living record in Iowa and (3) they have filed regular Iowa resident income tax returns during absence from the state.

c. Domiciliers 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 tuition charges or who engages in any activity 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 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 as part of deportation; or (2) Has resided in another state for 180 days or less; and (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 the usual treatment of an Iowa domicile.

1.4(6) Classification of residents and nonresidents for admission and fee purposes

Residence

720—1.4(268) Classification of residents and nonresidents for admission and fee purposes
returns. Military personnel will be expected to have filed their 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(3) 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 the student is unenrolled for a period of less than 12 months and provided domicile is re-established. If the absence from the state is for a period exceeding twelve months, resident status would need to be re-established in the same manner as for an initial move to the state, unless evidence can be presented showing Iowa residence has been maintained in accordance to the established criteria. However, a long-term former resident who returns who an absence of more than one year but less than two years is allowed to regain residency after one year even though a full-time student.

d. A student who has been a continuous student of the University and has not attended the University's service since graduating from high school and whose parents move to Iowa may become a resident at the beginning of the next term provided the student is dependent upon the parents for their major financial assistance.

e. A student who moves to Iowa may be eligible for resident classification at the next registration following twelve consecutive months in the state provided the student is not enrolled for more than eight credits (four credits during the summer session) in any academic year term and provides sufficient evidence of establishment of an Iowa domicile.

f. If a person who is engaged in a religious vocation, Peace Corps, Vista, or other military service as a non-U.S. resident is classified 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 someone designated by the registrar. The decision of the registrar or designated person 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 transcripts—general

A person may not be permitted 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 have 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 have 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 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 as admission statement by the director of admissions.

720—2.3(262) College of business administration

2.3(1) Application for admission

Applicants for admission to 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.

3(2) Requirements for admission

For admission to the college of business administration an applicant must have—

a. Completed specific course work as prescribed by the faculty of the college.

b. A grade-point average of 2.0 on the university's required examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor difficulties in meeting grade-point requirement may 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.

Fullfillment of the minimum requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be the best qualified.

720—2.4(262) College of dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Dean 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 seek admission leading to a 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.

Fullfillment of the specific requirements for admission do not assure 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 the best qualified for the study of the practice of dentistry.

Each applicant must place his file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college does not publish 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 sixty-nine semester hours and including specific required science courses as prescribed by the faculty of the college. Electives 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.

The quality of course work in predental science is basic to success in dentistry, special consideration to each 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 officer 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 applications must be completed and submitted to the Dental Admissions Committee at least 90 days before the desired term. The completed applications will be mailed to the Dental Admissions Committee at the University of Iowa, College of Dentistry, Iowa City, Iowa.

To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the application as soon as possible.

The Dental Admissions Committee reserves the right to require additional information from applicants.

Accepted applicants are required to make the required deposit within 30 days after notification of acceptance of their applications. The deposit is not refundable but is credited toward the first-year payment. The applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the faculty of the University of Iowa's medical school within two weeks following notification of acceptance.

All applicants must also complete, through student loan service, an F.D.I. form of the college prior to registration.

Applications for admission to the college of dentistry must be received not later than December 1.

Graduate studies include:

2.4(2) Advanced standing

Applications for admission with advanced standing will be handled as individual cases.

2.70-2.5(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.

2.4(1) Admission of freshman students

The applicant must submit a formal application for admission and must have the high school transcript of 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 admission examinations, 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 alter a review of the applicant's record. (a) Admit unconditionally, (b) admit on probation, (c) require enrollment for a tryout period during a preceding summer session or (d) deny admission.

2.5(2) Admission of undergraduate students by transfer

The applicant must submit a formal application, a certified transcript of college work, and the current student health service within two weeks following notification of acceptance.

All applicants must also complete, through student loan service, an F.D.I. form of the college prior to registration.

2.5(2) Admission of undergraduate students by transfer

The applicant must submit a formal application, a certified transcript of college work, and the current student health service within two weeks following notification of acceptance.

All applicants must also complete, through student loan service, an F.D.I. form of the college prior to registration.

From applicants who do not meet the requirements recommended by the director of admissions will review individual records and may offer probationary admission.

720-2.5(262) Graduate college

Graduates of any college or university accredited by regional accrediting commissions 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 granted upon competition 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

3.7(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 obtained a combined GRE score of at least 2.5 on all college work undertaken. The graduate program in law at 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 faculty of the college of law.

Applications for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the college of law.

720-2.7(262) Graduate college

Graduates of any college or university accredited by regional accrediting commissions 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 granted upon competition 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

3.7(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 obtained a combined GRE score of at least 2.5 on all college work undertaken. The graduate program in law at 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 faculty of the college of law.

Applications for admission must present a baccalaureate degree from an approved college or 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 each spring and fall each 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 meeting the minimum requirements, the admissions committee of the college of law will select those applicants who, in their judgment, appear to be the best qualified for the study and practice of law.
committee may require personal interviews of applicants.

2.7(2) Admission with advanced standing

A student may be eligible for admission if the student (a) has attended a school approved by the Association of American Medical Schools; (b) is in good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which transferring); (c) meets the admission requirements for beginning students; and (d) 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 should 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 insure admission to the college of medicine. From among the applicants meeting the specific requirements, the admissions committee of the college of medicine will select those applicants whose application appears to be best qualified for the study and practice of medicine.

Prior to entering an applicant must:

a. Have received the baccalaureate degree;

b. Have completed three years of a combined baccalaureate—medicine curriculum which satisfies the applicant to require the completion of the first year of medical school;

c. 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 present 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 satisfy the minimum 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 circumstances.

The college curriculum must include at least three years (equivalent to ninety-six semester hours) including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that 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. In the selection of applicants, preference will be given to those who evidence 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 grading 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 of the year of the year preceding that for which they are applying for admission. Students may make arrangements to apply for this examination through the University of Iowa's testing service, the University of Iowa.

Personal interviews will be required. Applicants will be notified of the appointment for interview. Applicants accepted for admissions 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 successful vaccination against smallpox prior to registration.

2.8(2) Admission to advanced standing

If their work preparatory 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 must 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 comes, 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(262) 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 have completed a minimum of thirty-three semester hours completed at 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 textbooks to be read.

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 assure admission to the college of nursing. From these applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

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720—2.10(262) College of pharmacy

2.10(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure 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 quantitative 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 collegiate work undertaken. The minimum grade-point average of 2.0 is based on the state University of Iowa’s grading system in which the grade of "A" is equivalent to four 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(260), 1.1(261), and 1.1(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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