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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, Iowa scholarships, student financial aid, housing, and student personnel services.

The University of Iowa does not discriminate in its educational programs and activities on the basis of race, national origin, color, religion, sex, age, or handicap. The University also affirms its commitment to providing equal opportunities and equal access to University facilities without reference to affectional or associational preference. For additional information on nondiscrimination policies, contact the Coordinator of Title IV and Section 504 in the Office of Affirmative Action, telephone (515) 337-6719, 200 Jessup Hall, The University of Iowa, Iowa City, Iowa 52242.
# University Calendar

## Fall Semester

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<thead>
<tr>
<th>Event</th>
<th>1986</th>
<th>1987</th>
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</thead>
<tbody>
<tr>
<td>Registration begins</td>
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<td>August 24</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 27</td>
<td>August 26</td>
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<tr>
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<tr>
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<tr>
<td>Classes resume</td>
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<tr>
<td>Classes end</td>
<td>December 12</td>
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<tr>
<td>Commencement</td>
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<tr>
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<td>January 1</td>
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<tr>
<td>Registration begins</td>
<td>January 15</td>
<td>January 14</td>
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<tr>
<td>Classes begin</td>
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<tr>
<td>Saturday Classes only meet</td>
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<td>Classes resume</td>
<td>March 30</td>
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<tr>
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<td>May 15-15</td>
<td>May 9-13</td>
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<tr>
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<td>June 8</td>
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<tr>
<td>Classes begin</td>
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<td>University holiday</td>
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<td>and graduate students</td>
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What Iowa Is All About
The University of Iowa is a leader in American higher education. Responsible for many historic firsts, it has won international recognition for its wealth of achievements in the arts, sciences, and humanities. Founded in 1847 as Iowa’s first public institution of higher education, the University has become a major intellectual and cultural center for the state of Iowa, bringing together undergraduate, graduate, and professional students from distinguished schools and colleges in a cross-cultural, intellectual community.

The University is noted for:

- International leadership in creative writing;
- Establishment of the first law school west of the Mississippi;
- Development of and continued prominence in educational television;
- Broadcast of the world’s first educational television programs;
- Operation of the nation’s largest university-owned teaching hospital;
- Numerous awards for its theatre and communications programs;
- World-renowned research in biostatistics, engineering, and agriculture;
- Pioneering space research, with University-designed research instruments used in major missions since the 1950s;
- Operation of the nation’s largest dental research facility supported by private funds.

Legal: 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. Legal: art education is the core of learning at the University of Iowa. Not only does the College of Legal Arts have the largest enrollment among the University’s ten colleges, it also is serving the entering point for most students, including those who later transfer into one of the eight 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 in-house undergraduate programs, the University offers an appropriate balance between undergraduate and graduate education. The baccalaureate programs provide a solid base for the development of high quality master’s and doctoral programs in many fields. The Graduate College provides leadership in the development, review, and oversight of graduate programs.

Award-Winning Teaching and Scholarship

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

Faculty 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 Rube Schulers and Pulitzer Prize winners, and leaders in business, the arts, the sciences, and education.

The University of Iowa reacts to all segments of society. While it remains a university for those who are high achievers, it is not an exclusive institution.470,000 students from around the world enroll, and 310,000 students from outside the United States. The University of Iowa offers a wide range of academic programs at all levels. Students attempt to develop a balance between scholarly research and teaching. There are 45 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 Art: the Arts Council provides the stimulation and setting for professional-caliber theater, dance, and musical performances by students and faculty as well as by visiting artists from around the world. The University of Iowa Museum of Art displays its outstanding permanent collections, works by faculty and students, and traveling exhibits year round. Joining in the performing and visual arts, the world-renowned Writers’ Workshop and International Writing Program make the University and Iowa City one of the nation’s most prominent arts communities.

As the nation’s largest university-owned teaching hospital, the University of Iowa Hospitals and Clinics serve 460,000 persons from Iowa and other states every year. Specialized care is provided by more than 1,300 physicians and 2,100 registered nurses, and 4,000 professional and support staff.

In athletics, the Iowa Hawkeyes enjoy national recognition and enthusiasm from Hawkeye fans as Iowa City’s home of the University of Iowa Hawkeyes. The Hawkeyes have won many championships, including NCAA, Bowl Championship, and Big Ten conference titles, and have had an overall record of success.

The University is located on 600 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 1832 until 1846, and then housed the legislature and governor’s office for the state of Iowa until 1867, when the state government was moved to Des Moines. Various University offices and departments were housed in Old Capitol when it was restored as a National Historic Landmark and opened to the public in 1978. A new, major attraction for educational facilities in the University of Iowa is the University of Iowa Natural History Museum in Northridge Park that opened in 2007.

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Iowa City

A forward-looking community provides a special setting for The University of Iowa. The residents of Iowa City, the center of the University of Iowa City and the University is thriving, cooperative, and supportive. Faculty and staff share with business, professional, and working people outside the University in the responsibilities of community government and service. Within mutual interest and need, we work together to create an environment for growth in teaching and research, in health and in social well-being.

A community of 50,000 people, Iowa City lies at the crossroads of Chicago, Minneapolis, and St. Louis. The city is accessible by airlines serving the Cedar Rapids-Iowa City airport, by major bus lines, and by car from major highways.
Academic Programs

The University of Iowa is one of nine 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 of Iowa. It offers more than 20 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 faculty includes some 1,800 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. Some faculty members from the University's professional colleges also teach undergraduate classes in the College of Liberal Arts, including a number of interdisciplinary courses.

The University's undergraduate enrollment is about evenly divided between men and women students. Approximately three out of four undergraduates are Iowa residents. The rest are students from all other 49 states and 88 foreign countries.

About 75 percent of the University's entering freshmen had a B average or above in high school. Approximately 85 percent of the freshman class were in the upper third of their high school classes and about 24 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. All full-time students and students with some form of employment; one-third have education loans; one of two undergraduates and one of five freshmen have scholarships. Most UI scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a smaller 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 beyond the on-campus, for individuals who cannot enroll as regular full-time students. These learning opportunities include: mail 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 degree program designed for adults who want to earn a college degree, but are unable to enroll in traditional on-campus study.

Degrees Offered

The University offers the following degrees. The major fields are listed in the various college sections of this 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 Pharmacy, 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 these universities and the University of Chicago in the Committee for Institutional Cooperation (CIC). 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, 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 Honor Economics 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
  High distinction—next highest 5 percent
  Distinction—next highest 10 percent
- Pharmacy
  Highest distinction—grade-point average of 3.75 and above
  High distinction—grade-point average of 3.50 to 3.74
  Distinction—grade-point average of 3.25 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 D 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 D grades are recognized by inclusion on the President’s List.

Undergraduate Scholar Assistant Program
For students who rank in the top one percent at the University, the Undergraduate Scholar Assistant Program provides 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, Mortar Board, and Omicron Delta Kappa are among the national honorary and professional societies that have active chapters on The University of Iowa campus.

University Marking System
Mark and Grade Points/Semester
A (4) above average
B (3) average
C (2) below average but passing
D (1) failing
F
H+ honors
H incompletes
N no passing
N+ no grade
N* satisfactory
U unsatisfactory
W withdrawn

The College of Law uses a numeric 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 1 in the Department of Biology (2). Entitled “Introduction to Biology,” Course numbers below 100 designate courses primarily for undergraduates; numbers 100 to 99 designate courses for undergraduates and graduates; and numbers 200 and above designate courses primarily for graduates.

College of Business Administration
6A Accounting
6E Economics
6F Finance
6K Management Sciences

6L Industrial Relations and Human Resources
6M

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

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

College of Engineering
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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

91 College of Law

College of Liberal Arts
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8GS Bachelor of General Studies Courses
1A Fundamentals
1B Elements of Art
1C Ceramics
1D Design
1E Art Education
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<td>Metalsworking and Jewelry</td>
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### Admissions

#### Applying for Admission

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

#### ACT and SAT Scores

All entering freshmen and transfer students are required to submit the American College Test (ACT) and have their scores reported to the University before they register for classes. Students who exceed the Scholastic Aptitude Test (SAT) also are acceptable. The Office of Admissions requires that students complete the ACT or SAT during the fall prior to their anticipated enrollment.

The scores from these exams are used as a criterion for admission, for academic advising and course placement, and for awarding University-administered scholarships and loans.

#### Application Fee

A $40 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University. Graduate students, students applying to professional schools, and students applying to the College of Dentistry are not required to pay an application fee.
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 financial aid. Entering transfer students and graduates are encouraged to apply well in advance of the session in which they plan to enroll. All application materials are due in the Office of Admissions by the deadlines listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" section).

College of Liberal Arts—Ten days before classes begin—All sessions.
College of Business Administration—May 1 for summer session; May 1 for fall semester; December 1 for spring semester.
College of Dentistry—November 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. Departments may have earlier deadlines; an early submission of materials to your department is advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.
College of Law—March 1, summer or fall semester.
College of Medicine—December 1 for fall semester only; Early Decision Plan, August 1 for the following year; preliminary applications must be submitted to the American Medical 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 nonresidents of Iowa according to criteria established by the Iowa Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found under "Iowa Administrative Code Board of Regents" at the back of the Catalog.

Graduate and Professional College Examinations

Prospective Graduate College applicants should take the Graduate Record Examination (GRE) General Test or, if applying for admission in a department of the College of Business Administration other than Economics, the Graduate Management Admission Test (GMAT). Prospective students of the 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 U.S. college or 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 advisor, graduate students determine the number of credit hours they should enroll in as 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 on their initial graduation progress report.

Medical Information

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

Community College Affairs

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

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

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

High School Preparation

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

Four years of English with as much emphasis on composition as possible;

At least three years of mathematics (preferably more if an analytical plan to pursue a science major);

Three or four years of social studies and humanities course work;

At least three years of science; and

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

Campus Visits

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

Orientation Services

With the aid of representative student, faculty, and staff personnel, Orientation Services design and conduct 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 take courses at either of the other two Regents universities (University of Iowa or University of Northern Iowa) on a credit-by-credit basis. Only those students in good standing at University of Iowa who have no academic deficiencies and whose University of Iowa grade point average is at least 2.00 may enroll in the other University without adversely affecting their University of Iowa grades. Credit earned at the other University will be recorded 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 designated head must approve the acceptance of such credits if they are to apply to the student and because time must be allowed to insure complete processing of the application between the cooperating universities within specified dates for excellence. Detailed information and application forms for the exchange program are available from the Office of the Registrar.

Tuition and Fees

The University's schedule of tuition and fees for full-time students, per semester, for the academic year 1898-99 is stated below. Extension School charges are $72 per semester hour. Correspondence courses are $82 per semester hour. Tuition fees are subject to change by action of the State Board of Regents.

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Law and Doctor of Pharmacy

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Medicine

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<td>5,897</td>
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General fees provide for the student's use of the Iowa Memorial Union, libraries, laboratories, and gymnasium; free admission to minor sports events and to student-faculty concerts; reduced price for admission to University athletic events and theater productions; and to performances by visiting stage and concert artists, subscription to the student newspaper, The Daily Iowan, delivery to housing units certain student hospital services, and other activities and services as announced.

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

Registration

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

Payment of Student Accounts

Tuition and fees, board, room, and other University residence costs (including, but not limited to, tuition, housing, and parking fees) are payable on an installment basis, with the first installment due on the first day of the fall semester, the first day of the spring semester, and the first day of the fall semester, the first day of the spring semester, and the first day of the spring semester. Students with accounts overdue on the fifteenth of the month are reported to the
How Aid Is Determined
Eligibility for need-based aid at The University of Iowa is determined by the same method of family financial analysis that is used by other colleges and universities throughout the country. The steps are as follows:
1. The University determines the estimated costs for an academic year; this 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 enough assistance to meet the financial need in full.

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

Minimum Semester Hours
Undergraduate students 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
Undergraduate and graduate students must maintain the required grade-point average requirement of the college in which they are enrolled.

Eligibility: Undergraduates must complete their bachelor’s degree within six academic years (12 semesters) or 144 semester hours. Graduates working towards master’s degrees must complete their programs of study within four academic years (eight semesters) or 60 semester hours. Graduates working towards combined master/doctoral degrees must complete programs of study within eight academic years (16 semesters) or 96 credit hours.

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 freshmen-year, non-renewable scholarships equivalent to the amount of resident tuition. For further information students should contact their high school guidance counselor or the University Office of Admissions.

The Iowa Center for the Arts Scholarship
The Iowa Center for Arts Scholarships are awarded primarily on the basis of ability and achievement. Each department (art, dance, drama, music) awards one scholarship to an entering freshman. The scholarship is the highest award available to entering freshmen. A maximum of four $2,500 awards (two for dance) are given. Non-renewable stipends are awarded. Each department sets its own eligibility and selection criteria and there is no Iowa residency requirement. For further information, students should contact their high school arts teacher, the UI School of the Arts or the University Office of Admissions.

The University of Iowa Minority Achievement Scholarship Program
The University of Iowa Minority Achievement Scholarships are awarded to minority students based on outstanding high school achievement. Ten scholarships for $2,500 per year are awarded; they are renewable for a maximum of four years. For further information students should contact their 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 outstanding scholarship in the National Merit
Scholarship competitions. 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 Honor Scholars and automatically receive $110 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 amount that may be used toward resident tuition is applied directly toward tuition. The scholarships are for undergraduates without a bachelor's degree who are enrolled full-time.

LaVerne Iveye Scholarships
LaVerne Ivey Scholarships are for U.S. citizens who are direct descendants of World War I army or navy veterans. Awards are based on financial need and are available to undergraduates without a bachelor's degree. Students must file the FAF/FPS and obtain the LaVerne Ivey applications 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 $520 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 receive a Pell Grant, or they may obtain the application for the Federal Student Aid form from my 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/FPS determines eligibility for this program.

Educational Opportunity Program (EOP) Grants
Institutional funds are awarded to students admitted to the UI Special Support Services program who show exceptional financial need. Parental income and assets information must be reported. The FAF/FPS determines eligibility for this program.

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

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

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

Health Professions Student Loan
Health Professions Loans are long-term federal loans for students enrolled full time in the Colleges of Medicine, Law, Pharmacy, or Dentistry. Amounts available depend on federal funding. The maximum amount is 9 percent. The FAF/FPS determines eligibility for this program.

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

Jobs
Part-Time Jobs
Student part-time employment can provide a meaningful work experience as well as an assistance in meeting educational expenses. The University of Iowa employs nearly 5,000 students in a variety of positions. Ranging from accountants to writers, 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 $3.50 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 on the second floor of Lewis 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. Students may speak with a job counselor at 302-335-3444. update 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 federally funded program that helps students earn money to meet educational expenses. The amount of a student's College Work-Study allowance is based on financial need and legislative funding. Students who have been granted at least half time in a degree program in the work experience should complement and reinforce the educational goals of the student.

Financial Aid/LEARNING AT IOWA 13
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, town or city clubs, community organizations, and civic groups. A little searching on the student’s part may unearth some unexpected source of financial aid.

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

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

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

Undergraduate Scholar Assistant works with professor

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

The resource room of the University’s Division of Sponsored Programs has information on student aid available from non-University sources such as foundations and professional associations.
Academic Advising Offices
Faculty Advisers
Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Students with declared majors are assigned advisers in their major departments. Students without declared majors are assigned advisers in the Undergraduate Academic Advising Center. Students in professional colleges (Business Administration, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine) are assigned by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

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

Undergraduate Academic Advising Center
Professional advisers at the 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 has an academic/student affairs office. These offices are available to all students in the respective college for assistance with questions concerning academic programs and Liberal Studies requirements, grading options, career and degree plans, and other items of concern. They assist students who want to change advisers and majors and they act on student complaints.

Cooperative Education
The Cooperative Education staff works with students, faculty, and employers to integrate work with study and contribute to a broader understanding of knowledge to students' education through supervised work experiences. Participation in Cooperative Education helps students to apply education in professional settings, earn professional experience before graduating, explore various majors/career options through multiple Cooperative Education experiences, and earn from professionals about 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 to 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 student/study abroad program and for the study abroad program. It also has developmental responsibilities in international studies and technical cooperation activities. The OIES works to enrich the campus by adding an international dimension to it. The OIES promotes development of joint cooperation among the various international studies, foreign language and area studies, cooperative and topical studies, and foreign language departments. It also assists faculty and students who work grants or fellowships for study or research with an international perspective.

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

The liaison officer for the Midwest Universities Consortium 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. In addition, foreign students can study-abroad programs complement their on-campus academic programs, and help avoid 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 student advisers provide information, counseling, and services related to orientation, immigration regulations, financial aid, and liaison with foreign governmental and sponsoring agencies, and help with problems and questions in areas of academic advising. They sponsor or support educational programs, such as the Friends of International Students, the

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 a 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 area 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 that helps students plan their careers.

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

Career Resource Center
The Career Resource Center is the leading career information center. It provides information on labor market trends, career options, academic requirements for specific careers, work environments, 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 nonprofit 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.
Tutorial Labs
Mathematics Tutorial Lab
The Mathematics Tutorial Laboratory, sponsored by the Department of Mathematics, serves as a training tool for students who do not have adequate high school mathematics preparation for the University’s required math course. The primary function of this lab is to provide tutoring to students enrolled in 12M, Basic Algebra I, and 12M.1 Quantitative Methods I. The lab plays an integral part in the instructional effort of the 12M.1 course through remedial tutoring, preparation for assignments and tests, and individual tutoring when necessary. Students are encouraged by their instructors and discussion leaders to use the math lab facilities.

The Mathematics Tutorial Lab also has tutoring rooms and hours available to assist students who are enrolled in 12M/2 Basic Algebra II, 12M.2 Quantitative Methods I, and 12M.4 Quantitative Methods II. As staff time permits, the math lab also provides tutoring service to students in other precursory mathematics courses.

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

Reading Lab
The Reading Lab of the Rhetoric Program provides a variety of individualized and class instruction for University students who want to improve their college-level reading performance. Working with the students, 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 needs.

The Reading Lab offers one service course, Voluntary Reading Lab, which requires the student to read a half hour 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 10.10 Rhetoric, a one-simmer, two-hour-service course for students who need exceptional help preparing for college-level reading. Reading Comprehension, RSP Speeded Reading, and RSP Practical Course 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 perspectives to help the students become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and cogently.

Students can enroll for noncredit work in the lab throughout the semester; or they can register for the credit course (10.10 Rhetoric) before or after taking a required Rhetoric course, or transfer to 10.10 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 students veterans with University application and enrollment procedures and receipt of Veterans Administration benefits.

Transcripts
Students who have completed work at the University of Iowa can obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $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 who are blind and nonvisually disabled. 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 attendant care and health services. The Office of Services for Handicapped helps students on an individual basis to locate the type of assistance appropriate to their needs, from securing tutors or personal attendants to finding tape recorders or emergency-loan wheelchairs.

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

Special Support Services is made up of the following programs: The Upward Bound Project, New Dimensions in Learning, the 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 mailboxes, hotels, motels, and apartment complexes, and coordinates a roommate matching service. The center is open seven days a week.

Campus Programs and Student Activities
The Office of Campus Programs and Student Activities (COSPA) 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 COSPA 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 OCSA staff. Workshops and a well-stocked resource center are available to student organizations.

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

Cultural Centers

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

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

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

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

Iowa International Center

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

Sports and Recreation

Intercollegiate Athletics for Men

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

Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic varsity teams for women in basketball, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. All ten varsity teams compete for championships sponsored by the Western Intercollegiate Conference of Faculty Representatives (Big Ten Conference) and the National Collegiate Athletic Association (NCAA). Athletic scholarships are available in all ten programs to qualified student-athletes. In 1980 women's intercollegiate athletics was included under the University Board in Control of Athletics.

 Intramural Sports and Recreational Services

The Division of Recreation Services administers a program of more than 50 intramural sports and recreational activities for all interested University students and offers a wide range of recreational lessons and activities such as martial arts, soccer, golf, aerobics, badminton, swimming, and gymnastics. The Division provides intramural activities for students, faculty, and staff members, and their spouses and lateral, including basketball, badminton, volleyball, walshball, table tennis, swimming, handball, paddleball, racquetball, squash, canyoning, golf, archery, weight training, tennis, and jogging.

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

The Division also manages the Macbride Nature Recreation Area, 453 acres of wooded terrain surrounded by three sides by the Coralville Reservoir and Lake Macbride north of Iowa City. Primitive camping, hiking trail, cross-country skiing, sailboat and canoe rental, public restrooms, and a small park are available for public use.

Iowa Memorial Union

The Iowa Memorial Union is the hub of student life. The facility includes the Campus Information Center, the University Box Office and ticketed cultural services; the Office of Campus Diagrams and Student Activities; a coffeehouse with live entertainment, Lin's; a variety of food services, a recreation area with billiards and card games, an art and craft resource center; a bookstore: rooms for lectures, concerts, meetings, and social events; and art and sculpture display areas. The adjoining Iowa House has 118 guest rooms for parents, alumni, conference participants, and other visitors to the campus. Also housed in the union are the Student Activities Center and student organization offices, University Counseling Service, the Career Information Services office, the Center for Conferences and Institutes, a copy center, and a barbershop.

Student Health Services

The Student Health Services are located in the Student Health Center in the University Union. All registered students at the University, except those registered in off-campus courses, are eligible for care at the Student Health Clinic. These services include care for chronic illness, acute illness, injury, and accident. A University-sponsored health insurance is available for students in individual or family plans.

University Counseling Service

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

Veterans Services

The Office of Veterans Services is part of the Office of the Registrar. It serves veterans, dependents of veterans, and veterans' spouses by administration-related duties and by providing educational benefits, University registration, and study at the University.

Women's Resource and Action Center

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

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

Fair Housing Policy

The following is the University's statement on fair housing practices: "It is the policy of the University that households and/or roommates shall not at all times on the basis of race, color, creed, religion, sex, national origin, or handicap discriminate, except where the same are necessary to accomplish the objectives of the University." The University of Iowa is an equal opportunity/affirmative action institution committed to the principle of equal opportunity in all areas of University life and respects the legal rights and responsibilities of students, faculty, and staff.

Residence Hall Policies

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

University residence hall furnishings, facilities, and services are designed to provide a pleasant atmosphere conducive to effective study. Single, double, triple, and quadruple rooms with hall or partial board are available in the Grand Avenue Residence Halls (west campus), which include Hill Halls, Wittenberg, Whiteman Halls, Quadronia, South Quadrangle, Quadrangle, Kinnick Stadium, Old Main, and the Intramural Residence Halls (east campus), which include Sarge, Canter, Davis, Mayflower, and Stewart Halls. There are lounges, study areas, game rooms, coin laundry facilities, and small storage 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.

Students and staff-initiated programs and activities provide opportunities to promote social, recreational, cultural, and educational interests. On-campus classes are taught in residence halls. Academic advising centers and tutorial sessions are also available.

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

Applications and Assignments

With 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 terms and conditions of the contract, provide all information requested on the application form, sign the contract portion, and return the completed application. Upon receipt, a check for $50 to the University Housing Assignment Office, Barge Hall, will be held for the student until the room is assigned. Students will not receive a room assignment until they have been admitted to the University. However, students may apply for housing at the same time they apply for University admittance.

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 notifying the University Housing Assignment Office in writing before the application becomes a binding contract. The application becomes binding approximately 10 days after the University Housing Assignment Office issues notice of acceptance of the contract and assignment of accommodations. Upon written request, the $50 advance payment is refunded to applicants who are not admitted to the University and to those who cancel their residence hall contracts in accordance with the terms and conditions set forth in the contract.

Rates

Basic rates for University residence hall accommodations for the 1986-87 academic year are $2,234 for a double room and $2,067 for a triple, with hall board. Rates for the several available room and board options vary depending on 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 Parkview complexes. Rates for 1986-87 range from $123.25 to $213.75 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 interior. Rates are subject to change annually.

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

Off-Campus Housing

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

Fraternity and Sorority

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

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

Professional fraternities operating chapter houses are Alpha Chi Sigma (Chemistry), Alpha Kappa Kappa (Medicine), Delta Sigma Delta (dentistry), Pi Beta Phi (medicine), Phi Beta Sigma, Pi Kappa Delta, and Phi Omega Delta.

The 16 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Delta Delta Delta, Alpha Gamma Delta, Alpha Phi, Alpha Sigma Alpha, Delta Gamma, Delta Phi, Delta Sigma Theta, Delta Zeta, Phi Mu, Phi Phi Delta, Phi Sigma Sigma, Pi Beta Phi, Pi Lambda Phi, Pi Beta Phi Sigma, Phi Mu, Phi Sigma Sigma, Pi Delta Phi, Sigma Kappa, Sigma Kappa, Sigma Sigma Sigma, Sigma Nu, Sigma Xi, and Zeta Tau Alpha.

All chapters are organized and chartered by the National Panhellenic Conference.
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 right of every individual student to exercise this freedom to learn without undue interference by others. This 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 no aspect of its programs shall be different in the treatment of persons because of race, creed, color, national origin, age, sex, and any other classifications that deprive the person 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 marital 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 employees of extracurricular activities and also 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 reached, the student should take the complaint to the departmental executive officer, if any.
- If a satisfactory outcome still is not achieved, the student may take the matter to the departmental dean.
- In addition, graduate students should consult with the appropriate advisor for academic affairs in the Graduate College concerning ways to resolve complaints.
- Some colleges (Health Sciences, Dentistry, Education, Engineering, Law, and Nursing) also have established ombudsperson systems as an alternative mechanism for resolving student complaints. Information concerning the informal mechanisms established in a specific college is available in the college dean's office or the College Association Council (CAC) office.

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. 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 not be disclosed to anyone else without the complainant's permission.
- If the investigation causes the complainant, in the judgment of the university, to be subjected to harassment or discrimination, the complainant has the right to confidential investigation, 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.
Research Activities

The University recognizes that its creative activity is indispensable if teaching is to have the relevance, depth, and effectiveness expected of a distinguished institution of higher learning.

The University holds that the term "research," as applied to creativity in all fields, imaginative originality, whether in the fine arts or in the sciences, is at a common characteristic 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 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 its close connection between the graduate programs and research and creative activity.

The University Research Council assists the vice-president for educational development and research in a regular advisory capacity. The council consists of two faculty members who are specially 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, from humanities, and two from the faculty at large. The role of the council is to provide context consideration to matters such as the establishment and enforcement of policies regarding the University's research and creative activities, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and administrative matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

With the advice of the University Research Council and other appropriate fiscal and administrative offices 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 those in the Schools of Dentistry, Medicine, and Pharmacy) who want to do health-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose that will assist the faculty member in conducting an initial exploration of a hypothesis that he or she believes lies toward the development of a full-fledged program of research.

Incidental Grants

Limited funds also are available in the Office of the Vice-President for Educational Development and Research for small grants to faculty members to cover the costs of supplies, equipment, proposal writing, and clerical and related administrative costs for specific research projects; for 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 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 research and teaching within the University, selected facilities are identified for centrally supported development. Such facilities are available to all interested researchers from the University. They currently include the following:

Computer-Assisted Image Analysis Facility

The Image Analysis Facility, located in the Medical Research Center, provides the necessary technical assistance for research programs involving computer image processing and analysis. The two Gould Deana RX500 imaging processing systems and a P535 Evans and Sutherland system are in operations, along with two MicroVax II minicomputer systems, an Elcomat 350 digital camera, and a variety of storage peripherals. The system includes software such as Micro VAX, KORTAN, and Pascal complex (as well as the Gould Deana Library of Image Processing software (LIP)).

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 a commercially available Applied Research Laboratories 5800-85 electron microprobe X-ray analyzer with three crystal spectrometer-detectors, a Nola (U.K.) 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 (1-10 micrometers) in the scanned image. This instrumentation incorporates an energy-dispersive X-ray spectroscopy system, which permits the rapid qualitative or quantitative analysis of bulk specimens to ppm levels.

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

Electron Microscopy (EM) Facility

The Electron Microscopy Facility provides instrumentation and technical assistance for research programs involving the use of scanning and transmission electron microscopy. The EM Facility is equipped with a Jeol JEM-1200s scanning electron microscope equipped with a Jeol X-ray microanalysis system, a Hitachi H-600 transmission electron microscope equipped with STEM and X-ray microanalysis system, a Balzers Bal 300 freeze-fracture/freeze-etch apparatus, a digital image processor, glass-foil samples, elemental samples, sterilization equipment, and a Philips 1000 transmission electron microscope. The EM Facility also provides all solutions and supplies necessary for investigations involving electrolytically, non-disruptively, specialized staining and embedding techniques, negative and/or positive metal-coating, autoradiography, enzymochemistry, and in situ immunocytochemistry, histology, sample preparation, the use of SEM, and freeze fracture, the preparation of material
science samples for both TEM and SEM, and other procedures. A modern library containing texts and reviews of various applications for TEM and SEM also is available.

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 Bowen Science Building of the College of Medicine.

Flow Cytometry Facility

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

High Field Nuclear Magnetic Resonance Facility

A recently acquired superconducting Bruker WM 360 spectrometer forms the basis for the High Field NMR Facility. The persistent magnet operates at 96.5 kilogauss and a magnetic field strength of 300 MHz is utilized for proton observation. Very high spectral resolution and sensitivity can be achieved for study of complex molecules in solution. Multinuclear, variable temperature, and selective pulse experiments are possible. Both hard disk and floppy disk systems provide data storage. Either digital or standard Y-plotting is available. Proton NMR spectra are recorded in form sample tubes, carbon-13 spectra are obtained from 5mm or 10mm tubes, and heteronuclear spectra are observed with 1H to 13C, 1H to 19F, 2H to 19F, or 13C to 19F. A program and fluorine-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 for an 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 Research Building, fills the gap between conventional computing provided by University-of-Idaho departmental equipment and supercomputers provided at national centers. A joint venture of the Center for Computer-Aided Design and Wieg Computing Center, the facility provides state-of-the-art, high-speed computational support for research by faculty, staff, and students. Support services include assistance in program adaptation for execution on facility computers, assistance in vectorization of code for more efficient use of facility equipment and 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 CEP 6420 High Speed Arithmetic Processor. Communication equipment provides campus-wide terminal access.


Large Scale Fermentation Facility

The Large Scale Fermentation Facility, located in the Bowen Science Building, makes possible the large-scale growth and recovery of microorganisms as yeasts and bacteria.

With its new, sophisticated growth, monitoring, control, and harvesting systems, the facility is one of only four medium or large-scale fermentors in the United States that are able to grow thermophagous bacteria and it is one of only five or six such facilities able to grow extremely thermophilic bacteria at 70-100 degrees C. The largest vessel in the facility—100 liters—is a rated for strict containment of genetically engineered organisms.

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

Laser Facility

The Laser Facility consists of a wide variety of modern laser instrumentation. In particular, state-of-the-art Ar Argon Ion and Krypton Ion lasers (with ultraviolet capabilities) are employed, either alone or in combination with a Tunable Dye Laser System, throughout the visible and near infrared regions of the spectrum. Each CW Laser is routinely operated single mode with a full width at one-thousandth of a reciprocal centimeter. This instrumentation is located in a spacious laboratory building which occupies the entire first floor of the southeast wing of the Chemistry-Boony Building. It includes a mechanically and thermally stable 4-foot-long enclosed optical bench with a variety of workstations for users.

Protein Structure Facility

The University of Idaho Protein Structure Facility, located in the Bowen Science Building, provides instrumentation and expertise to assist investigators with the preparation of pure proteins and peptides. The facility can analyze amino acid composition and sequence and can conduct high-sensitivity spectrophotometric measurements, rapid kinetics measurements, and analyses of hydrodynamic properties.

The facility serves a broad range of disciplines in the biological sciences, including biochemistry, molecular biology, and physiology.

Sponsored Programs

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

The division also publishes "Research and Graduate Agreement Newsletter," a faculty/staff newsletter, for those that contain project and deadline information and carry a specific section devoted to sources of funds for graduate study and research. The newsletter is available in the departmental offices. Faculty inquiries about graduate opportunities are welcome at the center.

The Division of Sponsored Programs is a source of information on public and private agencies that provide funds for research and study, including pre- and post-doctoral fellowships. Staff members are available to locate potential funding agencies, assist in the preparation of grant and cover material, and give editorial assistance to achieve effective organization and technical correctness of application. The staff also assists in processing an application through the University and in locating the
Center for Health Services Research
The Center for Health Services Research is a program of medical and public health education in health care policy and management. Center staff includes an interdisciplinary core of faculty associates drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration, and Liberal arts, as well as from The University of Iowa Hospitals and Clinics.

The Graduate Program in Hospital and Health Administration accepted responsibility for the management and development of the University Center for Health Services Research in 1981.

Technology Innovation Center
The University of Iowa Technology Innovation Center (TIC) offers a range of services and facilities designed to foster the development of new business-ventures—particularly those that make use of the expertise and capability of the center and the needs of entrepreneurs just starting up. However, TIC gladly serves established companies eager to launch new endeavors.

The strength of the center lies in its ability to provide the scientific and technical capabilities of the University with a wide range of needs and facilities. University faculty in the Oakdale campus, TIC provides congregational, open space workspaces where collaborations among scientists, engineers, and business professionals can flourish. It offers our customers access to the University’s facilities, technology, and expertise, as well as access to a battery of consulting services on crucial issues such as management, marketing, and finance. Funded in part by a grant from the state of Iowa and the Iowa City Technology Council, the Technology Innovation Center marks the continuing commitment of the University to serve as a truly public institution.

University House
University House, established in 1977, is a place and program dedicated to the support of faculty development and interdisciplinary research. Occupying 35 offices and meeting rooms in Oakdale Hall on the University’s Oakdale Campus, University House is a place free from common distractions where faculty members can work individually or in collaboration on scholarly and creative projects. The mission of the University House is to provide a productive environment for research and scholarship.

Video Center
The University Video Center provides high-quality video services and facilities, primarily to support and promote research activities. It also coordinates video equipment purchase and inventory and promotes efficient University support of campus video. Toward this 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 basic system design and maintains guidelines for equipment standardization.
Special Resources

Main Library facilities include microform reading rooms; listening rooms for collections of recorded dramas, poetry, and speech; a seminar and conference area; a map center; carrels for 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 in his copy by his famous literary friends, 158 association volumes, and 600 editions of Hunt's writings.

The Mark Romney Mineralogical Collection of approximately 9,000 volumes is particularly rich in delicate editions, including many superb bindings. The collection is the work of Mark Romney.

The French Revolution Collection 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 typeface, given to the University by the long-time Iowa City printer, includes 1,850 volumes of type specimen books, an important printing history, and volumes illustrating the art and progress of printing through the centuries.

The "Ding" During Collection comprises 80,000 books, most of which, for more than 40 years, Ding recorded and commented on in the economic, political, and diplomatic affairs of the United States. His cartoons are a vivid portrayal of this country during the first-half of the 20th century. A subject index to the collection exists in its entirety for reference and research.

The Volmer-Lincoln Collection, gathered by Judge James W. Volmer ofavenport, 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. Brookside residing to Iowa and the Civil War period have been added. The "47 Collection" is a gathering of early, rare, or special works on diverse subjects, including books of the fifteenth and sixteenth centuries, early Americas, Robinsburg Club Publications, private press books, and selected modern first editions.

The Manuscript Collections include more than 10,000 individually catalogued letters or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to some 300 inventories of collections of papers, diaries, and correspondence relating to midwestern economic, political, and agricultural history.

Other special collections include the Harvy-Hamph Collecction of books relating to the American Indian, the Law O. Leonard Collection of manuscripts and documents dealing with the Union Pacific Railroad, the History of Hydraulics Collection: the Edwin Ford Porter Collection of baseball and football, the Chautauqua Collection, which contains several thousand letters and business documents, describing the Chautauqua movement, the "Blondin Collection" of press cuttings, biographies, clippings, manuscripts, and letters relating to the contemporary English poet, Edmund Blunden; the Robert H. Curry Collection, and the Mobley-Paw Collection of ancient books relating to Edgar Allan Poe; the Map Collection, containing more than 215,000 maps and manuscript maps, multicolored photographic prints, and nearly 3,000 atlases, gazetteers, and related reference items, 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 native Iowan from Clarion, Iowa.

One of the most recent additions to the rare books collection is the Chel-Cote Scriptography Collection of books on the calligraphic arts. Some 250 books from earlier centuries presently in the collection will be augmented in future years so that the shelf is not lost to the University.

The University of Iowa Health Center

The University of Iowa plays a major role in the preparation of health professionals for Iowa and the nation. In its health center, students are trained in the academic programs, clinical facilities, and services agencies to prepare students and practitioners to serve a wide spectrum of human health needs-ranging from basic first aid to the most advanced diagnostic and treatment procedures-and to search for entirely new knowledge.

As soon as they have acquired the basic knowledge in their fields, health professions 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, therefore, simultaneously a center of learning and of service. It is one of the most advanced, comprehensive 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 graduate and undergraduate studies 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 650 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen.

There are 913 beds in the hospital complex, accommodating some 35,000 admissions annually. In addition, 135 specialty clinics accommodate another 356,000 ambulatory patients each year. Nearly 19,000 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 diagnostic and treatment—are easily accessible to patients who reside in communities without such resources. The hospitals'transporter fleet of 16 vehicles travels more than two million passenger-miles each year, transporting 4,657 locomotives. The Air Care Emergency Helicopter Service carries specially trained medical and nursing teams to aid the most critically ill and injured and to transport them to the hospitals for treatment. Many patients owe their lives to this service alone.

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

Other hospital staff members annually provide about 170,000 X-ray examinations and 135,000 blood tests; more than 15,000 laboratory tests; over 1.7 million prescription orders; more than 62,000 physical therapy treatments; and prepare more than 40,000 blood and component transplants.

Recent modernization provided new intensive care, cardiology, coronary center, and urology units. The seven-story, 815 million Boyt 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, named in honor of a $2 million gift from the late Muscatine industrialist, provides facilities for surgical and ambulatory care, emergency treatment center, physical therapy department, cardiology and cardiothoracic, and urology inpatient, clinic and faculty offices, surgery and internal medicine

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 salaries, equipment, and supplies, 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 for children.

Council on Speech Pathology and Audiology

The council coordinates clinical services in speech pathology and audiology offered within the department of speech pathology and audiology. The University of Iowa Hospitals and Clinics provide specialized clinical settings for Kirkwood Community College programs in nursing education, occupational therapy, speech-language pathology, and audiology. The program is accredited by the Joint Committee on Teacher Education.

Dental Service

The dental clinics 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, educate teachers, conduct research, and develop curricula and instructional materials for health occupations education in the schools in the part of the state's 15 area community colleges, as well as a growing number of high schools. The Health Occupations Education staff also assesses 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 Health Sciences Library contains more than
University (State)
Hygienic Laboratory

As the state'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.

The environmental area of 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 sulfur analyses.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analyses, and is one of only 25 laboratories in the nation certified to perform analyses for hazardous waste sites under the USEPA Superfund Program. It is an accredited industrial hygiene laboratory and holds an interstate license for diagnostic services involved in hotel food screening and for on-site metallurgical analyses in the metals industry and for the REM/volcanic vent.

When the University of Iowa, the Hygienic Laboratory provides coordination and training in diagnostic microbiology and veterinary 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 interested in learning 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 program is an organization that administers state-wide health services for children. Among these are the Genetic Counseling Service, Corneal Disease Prevention Program, Cystic Fibrosis Program, Childhood Cancer Research and Treatment Program, Kidney Comprehensive Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Iowa Newborn Screening Program, Community Child Health Center Program, and a program for Regional Child Health Specialty Clinics.

At Regional Child Health Specialty Clinics (COSC), conducted in communities throughout the state, Iowa residents are provided with primary and evaluation services in pediatrics, orthopaedics, otolaryngology, speech pathology, audiology, physical therapy, nutrition, and clinical and educational psychology. CISC also supports the University of Iowa graduate training program in audiology and speech pathology and provides monitoring and follow-up services on special health problems. The offspring include muscular dystrophy, mental retardation, phenylketonuria, and hemophilia.

University Hospital School

A University-sponsored program that deals with the prevention of developmental disabilities and disabilities of infants and young children. The University Hospital School serves as the locus of activity for the Division of Developmental Disabilities within the Department of Pediatrics. It is an integral part of the tertiary-level health services available through The University of Iowa Hospitals and Clinics.

The interdisciplinary team approach provides services involving the fields of medicine, dentistry, nutrition, physical therapy, occupational therapy, recreational therapy, psychology, social work, special education, and preoccupational and vocational activities. Outpatient services provide comprehensive evaluation and follow-up of infants, children, and young adults who have problems and/Shot disabilities that affect their development. These services and therapy are planned in conjunction with the educational program in order to meet the needs of the parents and community-based services. The University Hospital School includes a number of special clinics: Child Development Clinic, Neurodevelopmental Clinic, Metabolic Disorders Management Clinic, Infant and Young Child Clinic, and Young Adult Clinic (in which a specialist brain address specific problems.

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

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

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

Laboratories of the Division of genetic and biochemical research of the Department of Pediatrics are used extensively in University Hospital research, training, and service programs.
University Speech, Language, and Hearing Clinic
Located in the Wendell Johnson Speech and Hearing Center, the University's out-
clinic evaluation and consultation for individuals with speech, language, and/or
hearing problems. Day-clinic habilitation or rehabilitation programs for persons who
Do come to the clinic for such a service, a summer residential program for children
with speech, language, hearing, and/or reading problems, and training for the
students in speech pathology and audiology. Any University student may receive
these 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 four
University health sciences colleges, offers unique training
opportunities in clinical pharmacology,
hematology, cardiology, neurology,
ophthalmology, 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 within the College of
Liberal Arts, together with the Museum of
Art; the Theatre Building; Collegiate Hall,
Hamer Hall, The Opera Studio, and
Woodman Hall in the School of Music; and
Hancher Auditorium, the center's largest
performing arts showcase.

In addition to activities housed in these
facilities, various educational programs in
other parts of the arts campus reflect The
University's strong commitment to artistic
creativity. Financial support from many sources, both
public and private, is reflected in the
physical 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 leading force
for art in America for more than half a century. The original art building dates from
1936. Major additions were added in 1965-66
greatly extending 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 Ad Reinhardt, who in 1964 became
the first recipient of the Master of Arts
degree as studio art at The University of
Iowa.
The school's Corcoran Gallery, located in
the Old Music Building, features exhibitions of
new and experimental work created by
The University of Iowa's major visiting
artists. The gallery presents lectures and
performances that emphasize new concepts
and directions in contemporary art.

Museum of Art
The University of Iowa Museum of Art
provides an outstanding example of
enrichment of the arts through generous
private support.
In the early 1960s, Owen and Leisure Leifot
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 would 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 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 activities 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
Elliot 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 Asian Sculpture, a
gift of Elsabet and the late Max Stanley of
Muscatine. The addition of this collection
gives the museum one of the leading
university-based Asian art collections in
the country.
The Print Study Room houses more than
2,000 prints representing major artists. The
Lasansky Print Room holds 1000 prints and
drawings created by printmaker
Mauricio Lasansky, emeritus professor of
art at the University. Many Lasansky prints
are gifts from Werner and Gloria Gehman
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
documents lead groups to guided tours of the
museum's exhibitions. Cathedrals of many exhibitions are available for purchase.
Friends of the Museum of Art, a private
support group, sponsors receptions,
publications, cultural talks and as active Print and Drawing Study Club.

University Theatres
The Theatre Building houses the
Department of Theatre Arts. It is the home
of Museo 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
building 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
acoustical qualities lead from rehearsal rooms to two
auditoriums and to the stage of Hancher
Auditorium.
In a given year, faculty and student
ensembles present a series of major
concerts; an additional 225 to 300 vocal
and instrumental recitals are presented by
students.
Clapp Recital Hall, with its hand-crafted
Oswald tracker organ, seats 728 for
public concerts. The 200-seat Harper Hall is both a classroom and the setting for nearly
recitals. The school's largest ensemble (symphony orchestra, bands, Opera
Theater, and chorus) performs regularly in the
Auditorium/the Opera Studio, opened in 1983, is the scene for smaller productions of
the Opera Theater.
The school has produced opera since 1938.
It is interdepartmental in its opportunities for
educational and performance experiences, utilizing the talents and resources of other
units in the Iowa City for the Arts, particularly
dance.
The School of Music is at the vanguard of
innovation in the arts, creating and
performing works in new forms. Its Center
for New Music, originally funded by the
Rockefeller Foundation, is a laboratory and
extension of the composition area. Faculty
and students have been members of the Center for
New Music for a repertoire ensemble for the
performance of both new compositions and
masterworks of the twentieth century.
Two experimental music venues provide a
wide range of technical capability for
concerts. The Windover Press, a student journal, is a
computer-generated music. "In Video," the school has the most advanced laser
Laser sculpture in brilliant color to produce visual effects to sound. Outstanding
recording facilities link the various performance spaces of the School of
Music.

Hancher Auditorium
Hancher Auditorium is a regional cultural
resource of the state. The facility opened in 1972, and in its first
season has drawn audiences totaling
nearly 2 million people. The auditorium is a
rehearsal area for students and provides a valuable asset to the school. Hancher also
has added a hearing augmentation system, which is available for free of charge
to patrons with hearing impairment.

Arts Center
Arts Center is the administrative center for the department at the University of
Iowa. It houses offices for the department, and its
facilities are available for use by students and faculty. The center is
a major source of support for the department's activities, and its
facilities are used by a wide range of groups, including
the University's opera, ballet, and dance programs.

Broadcasting and Film
The Television Center and the radio stations WUSL and WSUV are key
in the department of Communication Studies. The center's
programming is a mix of local, national, and international news, music, and entertainment.

The Writing Programs
The Writing Programs at the University of
Iowa have a long tradition of excellence. They include
programs in fiction, poetry, translation, and playwriting. The center
provides opportunities for talented writers to
work and learn with established poets,
and playwriting.

Windover Press
The Windover Press is one of the nation's
small companies of distinguished hand
printers. Its limited editions are
highly prized by collectors and
their admirers.

Dance Program
The Dance Program at the University of
Iowa is a part of the College of Fine Arts.
Its mission is to provide opportunities for
students to study and perform dance as an
art form. The program is supported by
the university and the state of Iowa.

Museum of Natural History
The Museum of Natural History is the
largest museum of its kind in the United States. It
contains over 4 million specimens and artifacts, ranging
from ancient fossils to modern technology.

The Museum is located in the Völkerhaus, an
outstanding example of German architecture.
It is housed in the former headquarters of
the American Philosophical Society.

The museum's collections include
archeological materials, botanical
specimens, geological specimens,
minerals, and other natural history
taxa. The museum also has a
research library and is a
research facility for many
scientific disciplines.
Public Information and University Relations

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

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

OPIUR publishes the general University Calendar of Events, Parents Times for students' parents; the newsletter for faculty and staff; Ambitio, featuring forthcoming arts activities; and Spectator for alumni and friends of the University. The department also includes the Office of State Relations, oversees the University's external office of the Parents Association; and provides corporate hospitality for other services for University visitors and guests. In addition, OPIUR has management responsibility for the Department of Publications.

Other Resources

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Publications

The Department of Publications offers services to assist 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 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 on-demand fulfillment unit for local 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 printing purchased outside the University.

The University of Iowa Alumni Association

The principal agency through which Iowa students further their identification with the University after they leave the campus is The University of Iowa Alumni Association. Organized in 1867, its current membership includes University graduates and former students throughout the world. Its continuing objectives are to manigage ties between alumni and the University; to implement programs of service to alumni, to strengthen public recognition of the University as an institution vital to the stability and welfare of the state and the nation as a whole; and to maintain a database to serve the University in strengthening its programs in 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 1868 to help the University obtain the greatest possible financial benefit from private giving. It manages 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, under its administration, manage, accumulate, or distribute gifts, bequests, and trusts—all for the benefit of The University of Iowa. The foundation is community at work to provide student and faculty research and development, 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 conducts placement and exempting tests designed to assist entering students in course selection. The Service also provides registration information and administration of local and national test programs including the American College Testing Program (ACT), College Level Examination Program (CLEP), Medical College Admission Test (MCAT), Graduate Record 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 (NTC).

For faculty and staff, the Examination 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, questionnaire design, and test profiles; and provides consultation on questionnaire development and use.
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Dean: Leslie Liebowitz
Associate Dean of Academic Programs: James G. Lindberg
Associate Dean of Development and Research: George H. Cisz
Associate Dean of Faculty: Julia D. Davis
Assistant Dean of Academic Programs: Miriam Gerland
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 many occupations and professions require. They provide the prerequisites for professional study in medicine, nursing, and pharmacy, and in business, law, and education, and form the basis for graduate work. These programs also provide a general education, which is itself important for students a broad range of occupations.

Liberal education is general in the breadth of knowledge and skills it imparts, but it is not superficial. The College of Liberal Arts offers 55 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 to which they live, the social organism in which they are, and the values of the civilizations they have inherited. The discoveries of scholars and the creative work of artists and writers in this century have greatly expanded our knowledge of natural processes and phenomena and 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 upon a general education.

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 specialization. It develops the capacity to sort significant questions, to find answers, to judge degree, to be free of superstition, and to adapt to change.

College Organization

The internal organization of the College of Liberal Arts reflects its multidisciplinary character. The college is composed of units of various names: divisions, schools, departments, programs, and interdepartmental units. There are two divisions in the college. The Division of Fine Arts encompasses the School of Art and Art History, the School of Music, the Department of Communication Studies, and the Department of Theatre Arts. The Division of Mathematical Sciences includes the Departments of Computer Science, Mathematics, and Statistics and Information Science. Within the college there are seven schools. In addition to the School of Art and Art History and the School of Music, there are schools of Journalism and Mass Communication, Letters, Library and Information Sciences, Religion, and Social Work. Other fairly normally organized departments and programs provide instruction on the college and 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 this catalog.

Liberal Arts Office of Academic Programs

The Liberal Arts Office of Academic Programs, located in 116 Schlueter 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 the college; the College-Level Examination Program (CLEP) and the Advanced Placement Program (AP); auditing courses, pass-fail and satisfactory-fail grading; and the second-grade-only option.

Students also should visit the Office of Academic Programs to declare or to change majors, to file the second-grade-only 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 adjudicates appeals brought by students concerning academic matters or relates them to the student appeals committee. Working closely with the committee on student academic discipline, 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.
Arabic 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.
Cooperative education—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 science—B.S.
French—B.A.
Geography—B.A., B.S.
Geology—B.S., B.A.
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 enrollment. 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 (36 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 biology). 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 Swahili are available to students seeking a B.A. in American Languages and Literature. The School of Art and Art History and the School of Music have many different tracks leading to bachelor's degrees: studio emphasis, art history emphasis, and art education: music education, music history, music therapy, composition theory, and performance. These are only a few examples of the many options within degree programs.

Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication Studies and the School of Journalism and Mass Communication; photography and graphic design specializations with courses taken in the School of Fine Arts and Communication; or a specialization in management with courses taken in the College of Business Administration.

For more information on specializations within and between programs, see the program descriptions in the Catalog and in advisories 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 (minor); 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 major in an area of study that draws on courses from two or more departments, as approved by the honors advisors from the departments concerned and the director of honors. The major must consist of at least 36 semester hours, including 5 or more semester hours of honors credit. Honors registration, and leads to the degree "with interdisciplinary honors." The program of study must be submitted for honors no later than the junior year.

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

Early Admission to Medicine or Dentistry

Students who are working toward a baccalaureate degree in the College of Liberal Arts may apply for 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 bachelor's degree in the College of Liberal Arts after early admission to The University of Iowa College of Medicine or College of Dentistry. Prior to enrolling in the professional college, a student must have earned at least 90 semester hours, fulfilled the 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 30 semester hours of ungraded elective credit that may be applied toward a baccalaureate degree. However, no more than 30 semester hours earned in the professional college after the student transfers from the College of Liberal Arts may be counted as elective credit toward a degree from the College of Liberal Arts.

Early Admission to Other Medical or Dental Schools

If students accept early admission to an accredited medical or dental college in the United States other than The University of Iowa, they should apply to the graduation analysis division of the Office of the Registrar during their final semester in residence at The University of Iowa for permission to apply the 30 hours of credit toward the baccalaureate degree. Students must meet the requirements given above for early admission to 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 to the dean of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting a representative of the Office of the Registrar in the College of Liberal Arts. A plan of study must be developed and approved by the advisors from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. Students in the combined program normally can meet the baccalaureate degree requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major area of study selected in liberal arts programs.

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 socio-humanities are accepted regularly for credit by both colleges, the student is in many cases, satisfying the requirements for two colleges by taking a particular course.

Two or More Bachelor's Degrees

Students who wish to earn an additional bachelor's degree 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 A.A. and B.S. degrees will be considered to have satisfied all the college requirements for graduation except the foreign language requirement. Students of other degrees must meet college course requirements.

Students with a B.A. or B.S. degree from other colleges also must satisfy the residence requirement for a bachelor's degree at Iowa.


Totai 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 indicated in 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. degrees must achieve the college's grade point average of C (2.0) in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the major field, including 2.0 in all University of Iowa major work.

R.G.S. students select the qualitative requirements for graduation by earning a grade-point average of at least 2.6 in all college work attempted, all work undertaken at The University of Iowa, and all advanced courses attempted.

Residence

Students must meet the residence requirement. This may be met by earning the final 30 consecutive semester hours in residence, or Forty-five of the last 60 semester hours in residence, or At least 45 of 60 semester hours in residence.

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

General Education Requirements

Students who enroll at The University of Iowa for the first time after May 1962 must complete the following General Education Requirements for the B.A., B.S., B.F.A., and B.M. degrees. Students who enroll at The University of Iowa for the first time after July 1980 must complete the following General Education Requirements for the B.G.S. degree.

Rerences: one or two courses (4.0-6 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 (5-9 h.)

Physical Education: four courses (4 h.)

Foreign Language: for the B.A. degree, the equivalent of four semesters (four years in high school) of a foreign language (8.0 h.); for the B.S., B.G.S., B.F.A., and B.M. degrees, the equivalent of two semesters (two years in high school) of a foreign language (6.0 h.)

Foreign Civilization and Culture: one approved course (3.0 h.)

Historical Perspectives: two approved courses (6 h.)
Humanities: 801 The Interpretation of Literature and two approved courses (9 hrs.).
Natural Sciences: two approved courses, one of which must be a laboratory component (17 hrs.).
Quantitative or Formal Reasoning: one approved course (4-6 hrs.).
Social Sciences: two approved courses (9 hrs.).

Old Core / Skills Requirements

Students who registered for the first time at Iowa for any session prior to June 1982 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 United Program

The United Program (UP) is a four-semester system 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 credits they transfer, must satisfy the rhetoric requirement.

The rhetoric requirement may be completed by one of 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 101-104 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 required 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 courses at The University of Iowa satisfies the mathematics requirement. These courses include:

M2M 1 Basic Algebra I
M2M 2 Basic Algebra II
M2M 3 Basic Geometry

Based on a phased schedule keyed to the student's size of first enrollment at The University of Iowa, grades received in these courses will be 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 1986: 22M 2; credit will not count toward graduation.
Fall 1987: 22M 3, 22M 4; 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 may also 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 as 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 1985:
Courses equivalent to 22M 2 taken after summer 1986:
Courses equivalent to 22M 3 taken after summer 1987:

Transfer students who receive A.A. degrees from Iowa community colleges participating in the Iowa Community College Regent Articulation Agreement 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 four to three semester hours. The reduction applies to all new freshmen and transfer students admitted for summer session 1983, first or second semester 1983-84, summer sessions 1984, and first semester 1984-85.

Only courses 1041 and 1042, offered by the physical education skills program, may be used to satisfy the requirement. Courses under these numbers have activity or sports titles and level 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 optional 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 activity will be counted toward the total required for graduation. Credit from these tests may not be applied as elective credit toward a degree.

Transfer Students
Transfer students may satisfy this requirement:
- By transferring 4 semester hours of college physical education course work (check, sports, and activities), 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 school to make a total of 4 semester hours from all colleges.

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

Veterans
Veterans may be exempted from this requirement by presenting to the registrar evidence of having completed a basic training program in a branch of the armed forces.

Foreign Language
Four semesters of a foreign language are required for the B.A. degree and two semesters for the B.S., B.F.A., B.G.S., and B.M. degrees. 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 meets 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 semesters of the same language in college, or the equivalent, meets the B.A. degree requirement. The completion of two semesters 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. degrees.

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. degrees.

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

Proficiency Examinations
Satisfactory grade, based 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 wish to demonstrate proficiency in a foreign language usually are not eligible at The University of Iowa also may validate their proficiency.

Sequences of Courses that Satisfy the Foreign Language Requirement

<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Chinese</td>
<td>59.8 - 59.9</td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>120.11 - 130.12</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>French</td>
<td>91.9 - 91.10</td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>German</td>
<td>131.1 - 131.2</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Greek</td>
<td>141.1 - 141.11</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Hindi</td>
<td>39.31 - 39.32</td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>Language</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italian</td>
<td>181.1 - 181.11</td>
</tr>
</tbody>
</table>
20:113 Religion and the Occult in Antiquity 3 s.h.
20:114 Masterpieces of Music 3 s.h.
20:115 Major Themes in Music 3 s.h.
20:150 World Music I 3 s.h.
20:151 World Music II 3 s.h.
20:161 Introduction to Ethology 3 s.h.
20:400 Art of Dance in Contemporary Society 3 s.h.
32:2 Religion and Society 3 s.h.
32:3 Quest for Human Destiny 3 s.h.
32:10 Introduction to Religious Studies 3 s.h.
32:51 Religious Thinkers of the West 3 s.h.
32:107 Uses of the Old Testament in Verse and Drama 3 s.h.
32:111 Religion and Women 3 s.h.
32:164 Religion and the Occult in Antiquity 3 s.h.
33:121 The Good Society 3 s.h.
33:154 Human Nature and the Impact of Science 3 s.h.
33:162 Form and Mimesis in the Arts 3 s.h.
33:172 Opera as Drama 3 s.h.
33:50 Contemporary Latin American Narrative 3 s.h.
33:51 Survey of Film 3 s.h.
33:164 European Film History 3 s.h.
33:148 National Cinema 3 s.h.
33:19 Asian Humanities 3 s.h.
33:20 Asian Humanities 3 s.h.
39:50 Non-Western Literary Traditions 3 s.h.
43:1 American Values 3 s.h.
43:4 Major Texts of World Literature I 3 s.h.
43:41 Major Texts of World Literature II 3 s.h.
49:50 Non-Western Literary Traditions 3 s.h.
60:1 Art of the Theatre 3 s.h.
60:191 Greek Drama in Translation 3 s.h.
129:180 Literatures of the African Diaspora 3 s.h.
129:400 Introduction to African-American Culture 3 s.h.
130:111 Religion and Women 3 s.h.

Natural Sciences

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

1:2 Introduction to Botany (Lab) 4 s.h.
1:20 Plant Diversity (Lab) 4 s.h.
3:30 The Cell (Lab) 4 s.h.
4:5 Technology and Society (Lab) 4 s.h.
4:7 General Chemistry I 3 s.h.
4:8 General Chemistry II 3 s.h.
4:13 Principles of Chemistry I 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry I Lab 2 s.h.
1:11:1 Human Biology 3 s.h.
1:11:2 Human Biology (Lab) 3 s.h.
1:11:2 Ecology and Evolution 3 s.h.
1:25 Introduction to Geology (Lab) 4 s.h.
1:26 Evolution of the Earth (Lab) 4 s.h.
1:27 Earth History and Resources (Lab) 4 s.h.

12:24 Introduction to Environmental Geology (Lab) 3 s.h.
23:5 Chemistry and Physics of the Environment 3 s.h.
29:7 General Physics 3 s.h.
29:8 Basic Physics 3 s.h.
29:8 Basic Physics (Lab) 4 s.h.
29:11 College Physics (Lab) 4 s.h.
29:12 College Physics (Lab) 4 s.h.
29:17 Introductory Physics I (Lab) 4 s.h.
29:18 Introductory Physics II (Lab) 1 s.h.
29:50 Modern Astronomy 3 s.h.
29:56 Modern Astronomy 3 s.h.
29:46 General Astronomy (Lab) 4 s.h.
29:47 General Astronomy (Lab) 4 s.h.
29:90 Principles of Animal Behavior (Lab) 4 s.h.
37:1 Principles of Animal Behavior (Lab) 4 s.h.
37:40 Biology of the Brain 4 s.h.
37:49 Introduction to Animal and Human Behavior 3 s.h.
37:61 Human Genetics 3 s.h.
37:62 Genetics and Evolution 3 s.h.
44:1 Introduction to Physical Geography (Lab) 3 s.h.
91:71 Fundamentals of Science (Lab) 4 s.h.
113:13 Human Origins 3 s.h.

Quantitative or Formal Reasoning

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

77:25 Elementary Statistics and Inference 3 s.h.
279:10 Finite Mathematics 4 s.h.
229:16 Brief Calculus 3 s.h.
229:15 Mathematics for the Biological Sciences 4 s.h.
229:16 Calculus for the Biological Sciences 4 s.h.
229:17 Quantitative Methods I 4 s.h.
229:18 Elementary Functions 3 s.h.
229:25 Calculus I 4 s.h.
229:35 Engineering Calculus I 4 s.h.
229:45 Accelerated Calculus I 3 s.h.
229:52 Statistics and Probability 3 s.h.
229:58 Quantitative Methods II 4 s.h.
229:55 Elementary Linear Algebra and Statistics 3 s.h.
26:36 Principles of Reasoning 3 s.h.
26:40 Philosophy and Practice of Argument 3 s.h.
101:13 Logic and Formal Reasoning 3 s.h.

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

Social Sciences

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

3:15 Introduction to Speech and Hearing Disorders 3 s.h.
60:1 Principles of Microeconomics (offered for 3 s.h. summer session only) 4 s.h.
60:2 Principles of Macroeconomics (offered for 3 s.h. summer session only) 4 s.h.
79:190 Introduction to the Processes of Education 3 s.h.
54:106 Introduction to Afro-American Society 3 s.h.
30:301 Scientific Foundations of Communication 3 s.h.
20:1 Introduction to American Politics 3 s.h.
30:1 Introduction to Political Science 3 s.h.
30:20 Introduction to Political Science 3 s.h.
30:200 Introduction to Political Science 3 s.h.
30:300 Introduction to Political Science 3 s.h.
30:310 Introduction to World Politics 3 s.h.
30:310 The American Political System 3 s.h.
31:1 Elementary Psychology 3 s.h.
31:3 General Psychology (either 3.1 or 3.3 may be used) 3 s.h.
31:13 Introduction to Clinical Psychology 3 s.h.
31:14 Introduction to Child Psychology 3 s.h.
31:16 Introduction to Mental Health 3 s.h.
31:17 Introduction to Comparative Psychology 3 s.h.
31:18 Introduction to Sociology: Principles 3 s.h.
31:19 Introduction to Sociology: Problems 3 s.h.
33:260 Mass Media and Mass Society 3 s.h.
33:260 Communication Theory in Everyday Life 3 s.h.
34:101 Introduction to Human Geography 3 s.h.
34:101 Introduction to Social Geography 3 s.h.
34:191 Contemporary Environmental Issues 3 s.h.
34:36 Introduction to Economic Geography 3 s.h.
47:1 Global Interdependence and Human Survival 3 s.h.
131:1 Language and Society 3 s.h.
131:2 Introduction to the Study of Culture and Society 3 s.h.
131:10 Anthropology and Contemporary World Problems 3 s.h.
131:14 Language and Human Behavior 3 s.h.
131:19 Urban Anthropology 3 s.h.
21:100 Introduction to Afro-American Society 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 Hours from One Department: Students may use no more than three courses offered by any one department to satisfy the historical perspectives and the humanities requirements together.

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

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

Departmental Waivers of General Education Requirements: Each department at the college may waive up to four semester hours of General Education Requirements for its B.A. students and up to seven 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 Examination Examinations for General Education

Satisfactory performance on tests administered by the college may lead to full or partial exemption from the mathematics, foreign language, or foreign civilization and culture requirement (if not awarded). Exemption and up to four 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 Advanced Placement Program (AP) and the College Level Examination Program (CLEP) in the following general education areas: rhetoric, foreign language, historical perspectives, humanities, natural sciences, quantitative or formal reasoning, and social sciences. For specific information about the application of credit for AP and CLEP contact the Liberal Arts Office of Academic Programs or the Examination and Placement 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 satisfy 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 an A.A. degree in Iowa may count all Iowa Community College Regents’ Articulation Agreement courses as satisfying the major and elective requirements of the Iowa College of Liberal Arts. After meeting the requirements for the A.A. degree, students may earn additional course credit toward the A.A. degree.

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 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 Swahili and Portuguese), students may earn a double major, a major and a minor, or two minors (matching these degree programs. All students must earn a minimum of 56 semester hours in courses taken outside the major.

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

Students seeking double majors in the areas of early childhood, elementary, health, occupational, 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 students graduating from 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. Departments that do not specify the requirements for a minor specify that 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.

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 are its advanced courses acceptable for minors. 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 studies, global studies, Latino American studies, or women's studies.

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

Restrictions

Students in the Bachelor of General Studies or Bachelor of Liberal Studies degree programs are not eligible to earn minors, since these 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 interdepartmental programs—such as ancient civilization or literature, science, and the arts—may not earn minors in any 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 below listed will satisfy all requirements for the minor.

A computer programming course
Business Calculus (22M17, 22M25, or 22M35) 3 s.h.

Statistics (285B or 285D) 3 s.h.

6F: Principles of Microeconomics 3 s.h.

6G: Principles of Macroeconomics 3 s.h.

6A: Introduction to Financial Accounting 3 s.h.

6A: Management Cost Accounting 3 s.h.

*MR60 Introduction to Marketing 3 s.h.

*H60 Introductory Financial Management 3 s.h.

*6J10 Administrative Management 3 s.h.

4L: Introduction to Law 3 s.h.

*Must be taken in junior or senior year

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

Interested students should complete or register for the first seven courses listed above prior to applying for admission to the business minor program. The first seven courses may be used as elective credit or may be 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 Undergraduate 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 area 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 1980 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 must graduate under the old B.G.S. requirements, regardless of the date of their first enrollment.

New B.G.S. Requirements

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

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

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

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

No more than 40 semester hours of credit in any academic department may count toward the 124 semester hours required for graduation.
Students completing a B.G.S. degree may earn no more than 30 semester hours of credit in all other colleges of the University while enrolled in the College of Liberal Arts. Undergraduate course offerings by the College of Education are an exception to this rule. All other College of Liberal Arts policies regarding total earned hours, residence, pass/fail, tutorial, independent study, 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. All work undertaken at The University of Iowa, and all 100-level courses attempted.

No more than 49 semester hours of credit in one academic department may count toward the 40 semester hours required for graduation.

Students completing a B.G.S. degree may earn no more than 30 semester hours in credit taken in all other colleges of the University while enrolled in the College of Liberal Arts. Undergraduate courses offered by the College of Education are an exception to this rule. All other College of Liberal Arts policies regarding total earned hours, residence, pass/fail, tutorial, independent study, 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 48 semester hours in any one department.

For Further Information

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

Bachelor of Liberal Studies

Offered by each of the three Iowa Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa), the B.L.S. program is designed to serve adults who cannot attend college as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper Saturday and Evening Class 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 college work acceptable for credit toward graduation, with a 2.0 grade-point average.

B.L.S. Requirements

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

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

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

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

Of these 36 semester hours, 24 must be in upper-level courses. Of the 124 semester hours of upper-level credit in courses offered by the Iowa Regents universities, 45 must be applied to the General Education Requirements, and 30 must be applied to the B.L.S. program in the specific university. 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 course work applied toward the degree, in all course work completed after admission to the B.L.S. 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
Department are required to list courses open for registration from the Schedule of Courses for current listings.

Maximum Schedule
The typical schedule is 15-16 semester hours in a regular semester, 45 semester hours in a summer session. The maximum permitted registration is 20 semester hours in a regular semester, 16 semester hours in a summer session. Students may obtain permission to (is 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 form is submitted to the Registration Center.

Adding and Dropping Courses
Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with the approval of the adviser and instructor. Courses may be dropped at any time during the first ten weeks of the semester or first five weeks of the summer 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 listed in the Schedule of Courses, may be added with the necessary signatures at any time during the first one-third of the duration of the course and dropped at any time during the first two-thirds of the duration of the course. Similar proportional deadlines will operate during the usual eight-week summer session and for other special session courses.

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

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

Undergraduate in other colleges receive a W (Withdrawable) mark in the College of Liberal Arts after the third week, including courses numbered with the College of Education prefix 7 and Science Education

Program prefix 97. A mark of W is assigned for all courses dropped after the first one and one-half weeks of the summer session.

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

Students may not drop the same course with a mark of W more than twice. Special courses may be repeated are exempt from this rule.

Dropping for Nonattendance
In order to prevent the unexcused in crowded classes, instructors may drop 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 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 adviser, and the dean at any time prior to the end of the tenth week of the semester (fifth week of the summer session).

Other Changes in Original Registration
Changes involving pass-fail/pass registration or audit registration (zero credit) may be made only during the first one-third 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 of Registration
Students may withdraw without academic penalty any time prior to the end of the twelfth week of the semester or sixth week of the summer session. No credit is given for the semester or session. Withdrawal after the deadline results in the automatic assignment of an F in each course. Students who withdraw registration may not be 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 session 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 averages, hours in residence, and courses completed to satisfy the General Education Requirements and requirements in the major.

The analysis may be renewed at 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.

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

Grading Procedures

Marking System
The following marking system is used in the calculation of grade point average.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade point for each s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>P</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>W</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>I</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>N</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>S</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>Q</td>
<td>Not used in computing GPA</td>
</tr>
</tbody>
</table>

Withdrawal
Withdrawal after the deadline results in the automatic assignment of an F in each course.
Grade-Point Average

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

Pass-No Pass

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

If students are in good academic standing, they may register for pass-no-pass during registration or before the end of the third week of classes (or 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 register for pass-no-pass at any time up to the second week of the duration of the course. The signatures of both the adviser and the instructor must be obtained on the proper form, and the form must be submitted to the Registration Center before the deadline.

The grades of F and N are not used in computing grade-point averages; the grade of D does not count as hours earned for graduation.

Pass-no-pass grading may be used in elective courses to satisfy the General Education Requirements or requirements in the major or minor may not be taken pass-no-pass.

Not more than 16 semester hours of grades of D or F may be accepted toward the bachelor's degree. Transfer students admitted with fewer than 54 semester hours credit may earn the maximum of 16 semester hours of grades of D or F. Those admitted with 56 or more semester years are limited to 8 semester hours.

A maximum of two pass-no-pass courses may be taken in any one semester.

Satisfactory-Fail

Certain courses in the College of Liberal Arts are offered on a satisfactory-fail basis, and are so designated in the Schedule of Courses. All students registered for such courses receive either an S or an F. Special forms are not necessary to register for S-F courses, since all students enrolled in such courses will automatically receive either an S or an F.

The grade of S will not be used in computing the grade-point averages, but the grade of F will be used. The grade of F does not count as semester hours earned for graduation.

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

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

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 F (registered) will be assigned if the student's attendance and performance are satisfactory; if they are unsatisfactory, the mark of W (withdrew) will be assigned. Course credit for only zero credit will be awarded in an R-W basis. Courses offered for zero credit as well as for credit hours, when taken for zero credit, will be graded R-W. Courses completed with a mark of W will not meet any college requirement and will carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

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

Students who wish to use the provisions of this option should register in the usual manner for the course they decide to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one-and-one-half weeks of the summer session).

Visit the Liberal Arts Office of Academic Programs to check their eligibility and to complete the proper forms, unless the forms are completed. Classes continued will continue to be computed in the grade-point averages.

Restrictions

The second-grade-only option may be used only once per course. The provisions are limited 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-no-pass the first time, it may be taken pass-no-pass or for a grade the second time.

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

Incomplete (I)

A grade of I may be reported only if the 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 not be repeated to remove incomplete; the complete grades must be removed by completing the unfulfilled part of the work.

Failure to remove the incomplete during the next session for which the student is registered results in the student being assigned the grade of F. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record.

Failure to remove the incomplete during the next session for which the student is registered results in the student being assigned the grade of F. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record.

Incompletes (I)

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 not be repeated to remove incomplete; the complete grades must be removed by completing the unfulfilled part of the work.

Failure to remove the incomplete during the next session for which the student is registered results in the student being assigned the grade of F. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record. Incompletes from Spring semester are point averages from the semester that they are removed from the student's permanent record.

No Report (0)

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 incompletions. Failure to remove the 0 by the specified deadline results in the assignment of an F.

Midsemester Reports

At the beginning of each semester, reports for all students whose work is below C. These reports are distributed to advisors.
and to individual students, but delinquent grades are not recorded on the permanent record.

Academic Probation and Dismissal
Students in the College of liberal Arts are expected to maintain satisfactory academic standards and to demonstrate 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 classes are placed (or continued) on probation:
- Freshmen (9-12 semester hours): 1.60
- Sophomores (28-35 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-cum-PA (P/N) grading option may not be used by students in academic probation.

Entering students, both freshmen and transfer students, may be admitted on probation if they fail to meet the minimum 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 academic dean of the college, the Liberal Arts Office of Academic Programs, 116 Schaeffer Hall. Students who are permitted to register after the specified interval will receive 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 record of those students who have been dismissed from the college, and the notation "not permitted to register" will not 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 each course, 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 if courses in which freshmen are enrolled. When an instructor determines that a student has been excessively absent, that is, with such attendance endangering satisfactory academic progress, the instructor may call or send a written request to the Liberal Arts Office of Academic Programs for investigation and action.

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 the 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 directed.

Commencement Attendance
Attendance at undergraduate commencements is optional. Candidates for degrees should inform the Center in 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 to communicate with the students in the class.

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

Student Conduct
Any offense against good order committed by a student in a classroom or in 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 2C necessary facts. The department and the instructor concerned 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 sent to
to the Liberal Arts Office of Academic Programs.

The associate dean of academic programs, or the committee on student academic conduct, may authorize the holding of other penalties, as the offense may warrant: suspension from the college, or recommendation of expulsion from the University.

Recognition for Academic Achievement

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

Honors Program
The College of Liberal Arts Honors Program offers special academic and 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 pursue a special honors project under the individual guidance of a faculty member. Successful completion of a senior honors project leads to a baccalaureate degree "with honors" in the major (see "Graduation Honors" below).

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

Graduation Honors
High scholastic achievement is recognized upon graduation with distinction based upon grades only; and upon graduation with honors in a particular field, based on both grades and the co-requisite specifications of that field as set by the college and the major department.

To be eligible for either form of recognition, students must complete the final 30 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 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 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 requirements or the equivalents of 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 informally after they have completed the junior year in high school, but admission is not final until receipt of the final transcript and certification of high school graduation.

Applicants for transfer admission to the College of Liberal Arts must maintain a 3.0 average (2.0 in a four-point system) for all college work attempted, and must not be under suspension from the last college attended. Transfer applicants who are not Iowa residents are expected to have maintained a 2.5 average. Applicants who do not meet this standard may be permitted to take entrance examinations. Applicants who successfully complete the examinations may be admitted with probation.

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 not in the top half of their graduating class. Graduates of accredited high schools 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 take 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 or universities accredited by the appropriate regional accrediting agency. The recommendations contained in the current issue of the Report of Credit Given by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers is followed for schools not regionally accredited.

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

Transfer applicants are expected to have maintained a 3.0 average (2.5 in a four-point system) for all college work attempted, and must not be under suspension from the last college attended. Transfer applicants who are not Iowa residents are expected to have maintained a 2.5 average. Applicants who do not meet this standard may be permitted to take entrance examinations. Applicants who successfully complete the examinations may be admitted with probation.
In general, transfer applicants under academic suspension from the last college attended are not considered for admission during the period of suspension; or, if suspended for an indefinite period, are not considered until six months have passed since the last date of attendance. When eligible for consideration, these applicants are assessed primarily 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. Applications 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 refuse to apply the credits on a prorated 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 term of the validation process at the time of provisional admission. Students from nonaccredited colleges are considered on the basis of their merit, admission or rejection is at the discretion of the admissions office.

Foreign Students

Foreign students (those who are or will be in the United States on a nonimmigrant status), whether U.S. high school graduates or not, must be admitted to meet higher academic standards for admission (as are nonaccredited U.S. students) than the minimum requirements outlined for a resident or citizen of a non-U.S. country. 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 exams 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 (ESL) 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 Articulation Agreement, foreign undergraduates whose TOEFL scores are above 550 must enroll in rhetoric.

Like foreign applicants, permanent residents (Immigrants) whose native or official language is not English-speaking may be required to submit a TOEFL result. The linguistics department offers six ESL courses for students who need to improve their English proficiency.

Special Students

Students may be admitted to the college as special 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. Councils taking 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 Training in Armed Forces, with the understanding that any inconsistencies between such recommendations and the standards of the College of Liberal Arts will be referred to the Liberal Arts Office of Academic Programs. Examinations given in the Armed Forces or substitute 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 exams administered at The University of Iowa. In addition, exemption and academic credit may be awarded in most general education areas for satisfactory scores on examinations administered by the Advanced Placement Program (AP) or the College-Level Examination Program (CLEP) (see below).

Credit by Examination in the Major Departments

Departments may administer examinations covering required courses or areas of instruction in the major field. Departments may grant credit with a grade of P for successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 16 semester hours. Credit toward graduation is awarded for language majors only for passing examinations covering the third and fourth semester level (or above). Credit by examination may not be applied to the 10 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 whether credit for college 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 credit.

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

College-Level Examination Program (CLEP)

CLEP is an achievement testing program offered by the College Board that allows students to demonstrate college-level competence they may have achieved outside of usual college instructional 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 areas covered by the examinations themselves. 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 Iowa Office of Testing and Evaluation Service. Students who wish to participate in CLEP are encouraged to contact
so prior to their first enrollment that final results can be used to plan beginning of first semester schedules. "W" credit is automatically converted to "NP." Specific credit policies and further information can be obtained from the Liberal Arts Office of Academic Programs and the Examination and Evaluation Service.

Validation of Credit
Students with educational experience obtained at a non-accredited institution or in a formal training program in which there is no standardized procedure for evaluation of credit may request the validation of this credit. The Liberal Arts Office of Academic Programs will evaluate the student's background and recommend that the department chair should be consulted for approval to take the appropriate examinations.

Nondepartmental Courses
Unified Program Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>00044</td>
<td>Humanities I</td>
<td>3 s.h.</td>
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<tr>
<td>00045</td>
<td>Humanities II</td>
<td>3 s.h.</td>
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<tr>
<td>00046</td>
<td>Humanities III</td>
<td>3 s.h.</td>
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<tr>
<td>00047</td>
<td>Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>00048</td>
<td>Introduction to Comparative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>00049</td>
<td>History I</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>00050</td>
<td>History II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>00051</td>
<td>Science I (Lab)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>00052</td>
<td>Science II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>00053</td>
<td>Biology</td>
<td>4-5 s.h.</td>
</tr>
<tr>
<td>00054</td>
<td>Natural Mathematics</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

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

Aerospace Military Studies

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

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

Prior to commissioning, all AFROTC cadets must complete a course in mathematical reasoning. Cadets on AFROTC scholarships also must satisfy a requirement for an English composition course and for two semesters of a major Indo-European or Asian language. The College of Liberal Arts General Education Requirements must satisfy these requirements.

Year-Four Program
The four-year program consists of the General Military Course (GMC) and the Professional Officer Course (POC). The GMC offers a non- obligation look at AFROTC in addition, books and uniforms for AFROTC classes may be provided. The GMC consists of four one-credit AFROTC courses and the leadership laboratory. Normally, freshmen students take 23A/101 The Air Force Today and sophomores students take 23A/102 The Development of Air Power. The course is considered an AFROTC cadet, a student also must take 23A/107 Leadership Laboratory.

The professor of aerospace studies may give credit toward completion of the GMC for previous military experience.

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 sequences 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 are limited to at least two academic years of either undergraduate or graduate work remaining in college.

The POC consists of four one-credit AFROTC courses and 23A/107 Leadership Laboratory. Juniors take 23A/116/117 The Air Force Today, and seniors take 23A/112/113 National Security Forces in College. 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, successful completion of basic training, and the recommendation of the professor of aerospace studies. The student who satisfies all these requirements is considered to 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 providing 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 arms 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 special events, including informal parties, a formal dinner, the Military Ball, and an awards ceremony.

Cadets can join the Arnold Air Society, a business/professional alumni 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 with aircraft and the job and receive pay and allowances.

Selected APROTC cadets may attend airframe 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 program or professional training program.

Courses

221-11 The Air Force Today
Introduction to the U.S. Air Force, including aviation, education, and preparation for career opportunities.
221-11 The Air Force Today
Introduction to the U.S. Air Force, including aviation, education, and preparation for career opportunities.
221-11 The Development of Air Power
Introduction to the U.S. Air Force, including aviation, education, and preparation for career opportunities.
221-11 The Development of Air Power
Introduction to the U.S. Air Force, including aviation, education, and preparation for career opportunities.
221-11 Basic Flight Gunnery School
Preparation for advanced flight and Gunnery training.
221-11 Leadership Laboratory
Preparation for advanced flight and Gunnery training.
221-11 National Security Forces Course
Preparation for advanced flight and Gunnery training.
221-11 Management and Leadership
Preparation for advanced flight and Gunnery training.
221-11 Management and Leadership
Preparation for advanced flight and Gunnery training.
221-11 Leadership in Command
Preparation for advanced flight and Gunnery training.

Financial Assistance
APROTC scholarships are available for four, three and one-half, three, and 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 fee, 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.

African-American World Studies
Chair: Daniel T. Turner
Professor: Peter Neumayer
(English/African-American World Studies), David E. Turner (English/African-American World Studies)
Professor: Max Woodrow
(English/African-American World Studies), Joseph Woodrow
(English/African-American World Studies), Assistant professor: Melba Renfro
(English/African-American World Studies),
semester hours required for the degree. To 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 1 & 2, and two of the following—129:105, 129:166, 129:168 American History 1950-1914, 129:168 Afro-American History 1914-Present—except when they have taken equivalent courses as the undergraduate level. For other requirements, see "African 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 pre-habilitation semester hours required for the degree, at least 36 semester hours (not including the thesis) must be in courses in Afro-American studies, including 129:211 Introduction to Research in Afro-American Culture. 129:116-117 Afro-American Literature 1 & 2 and two of the following: 129:105, 129:166 American History 1950-1914, 129:168 Afro-American History 1914-Present—except when the student has completed graduate level surveys in Afro-American literacy 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 interdisciplinary approach spans research from more than one field, while focusing on an aspect of African-American society and experience. Additional requirements are described in "African American Studies" in this section of the Catalog.

Cognate Areas, Special Fields It is possible for students to take concentrations in Afro-American Studies courses as cognate areas in special fields in Ph.D. programs in history, English, and other disciplines. For further information, consult an advisor in African-American World Studies.

Co-curricular Activities

Black Kaleidoscope

The Black Kaleidoscope is a yearbook that is publish annually by the Iowa State University. It is a comprehensive resource for students, faculty, and alumni. The yearbook includes biographies, senior pictures, and other features that celebrate the diversity of the Iowa State University community.

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 the campus, also provided educational enrichment for the nation's teachers.

Black Action Theater

African-American students at the University of Iowa sponsored the Afro-American World Studies Program. The theater provided opportunities for students to participate in theatrical productions of plays by black authors.

African-American Cultural Center

The African-American Studies Program encourages students to use facilities of the Afro-American Cultural Center. The center serves as a research and library of educational and cultural artifacts and exhibits of black culture, promoting cultural enrichment for black people of the Iowa City community and providing opportunities for black students.

Black Genesis Troupe

The African-American Studies Program also encourages participation in Black Genesis Troupe, a student organization that deals with music, dance, visual arts, and public service in the arts. The organization provides opportunities for students to participate in community service and cultural programs.

African-American Studies Graduate Student Association

The Student Association of Afro-American Studies promotes and supports the development of Afro-American culture and history.

Related Courses

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

Course descriptions, see the appropriate sections of the Catalog.

Business Administration

6.352 Collective Bargaining 3 s.h.

Economics

6.137 Problems in Urban Economics 3 s.h.

Education

70:104 Education in the Third World 2-5 s.h.

70:206 Educational Sociology 2-5 s.h.

70:380 Seminar: Value Problems in the Administration of American Education 3 s.h.

79:105 Socialization of the School-Age Child 3 s.h.

79:117 The Culturally Diverse Learner: Educational Settings 3 s.h.

History

164:675 Archeological History 1492-1877 3 s.h.

164:682 American History, 1877-1937 3 s.h.

164:677 American Intellectual History 1877-1937 3 s.h.

164:679 African American Intellectual History from 1877 to 1937 3 s.h.

164:163 United States in the Early Republic 3 s.h.

164:164 Civil War and Reconstruction 3 s.h.

164:165 The American Revolution 3 s.h.

164:167 The New Era and the New Deal 1920-1940 3 s.h.

164:168 The Contemporary United States 1940-Present 3 s.h.

164:171 The Revolutionary Generation in America 3 s.h.

Courses

African-American World Studies and Related Areas

For Undergraduates

129:166 Afro-American Literature 3 s.h.

129:168 Afro-American History 1950-1914 3 s.h.

129:168 Afro-American History 1914-Present 3 s.h.

129:171 American Intellectual History 1877-1937 3 s.h.

129:175 History of the African Peoples 3 s.h.

129:182 African-American World Studies Program 3 s.h.

129:184 African-American World Studies Program 3 s.h.

129:185 African-American World Studies Program 3 s.h.

129:186 African-American World Studies Program 3 s.h.

129:187 African-American World Studies Program 3 s.h.

129:188 African-American World Studies Program 3 s.h.

129:189 African-American World Studies Program 3 s.h.

129:190 African-American World Studies Program 3 s.h.

129:191 African-American World Studies Program 3 s.h.

129:192 African-American World Studies Program 3 s.h.

129:193 African-American World Studies Program 3 s.h.

129:194 African-American World Studies Program 3 s.h.

129:195 African-American World Studies Program 3 s.h.

129:196 African-American World Studies Program 3 s.h.

129:197 African-American World Studies Program 3 s.h.

129:198 African-American World Studies Program 3 s.h.

129:199 African-American World Studies Program 3 s.h.

129:200 African-American World Studies Program 3 s.h.

129:201 African-American World Studies Program 3 s.h.

129:202 African-American World Studies Program 3 s.h.

129:203 African-American World Studies Program 3 s.h.

129:204 African-American World Studies Program 3 s.h.

129:205 African-American World Studies Program 3 s.h.

129:206 African-American World Studies Program 3 s.h.

129:207 African-American World Studies Program 3 s.h.

129:208 African-American World Studies Program 3 s.h.

129:209 African-American World Studies Program 3 s.h.

129:210 African-American World Studies Program 3 s.h.

129:211 African-American World Studies Program 3 s.h.

129:212 African-American World Studies Program 3 s.h.

129:213 African-American World Studies Program 3 s.h.

129:214 African-American World Studies Program 3 s.h.

129:215 African-American World Studies Program 3 s.h.

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129:261 African-American World Studies Program 3 s.h.
Aging Studies Program/LIBERAL ARTS

that leads to increased opportunities for teaching and research.

Several established programs and resources at The University of Iowa benefit the African Studies Program. The Stanley Collection of African art 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 and strengthen the African Studies Program, as does the exchange between The University of Iowa and the University of Ouagadougou, established in 1983 with funds from a United States Information Service grant.

Certificate Program

The African Studies Program provides undergraduate students with an interdisciplinary background in the study of Africa to complement a departmental major and serves as a step toward possible graduate study of Africa.

The curricula for an undergraduate certificate in African Studies includes 21 sequenced hours of coursework. These are divided into three levels of study: introductory, intermediate, and advanced. Undergraduate students pursuing the certificate take 10.5 of these hours as an introduction to the continent, its history, art, literature, politics, and peoples, and as an introduction to the African peoples at Iowa. This is followed by 4.5 semester hours of intermediate (100-level) lecture courses, with at least one course from each of four areas of study: literature, art, history, and social science. Non-African majors complete the study with a seminar or an advanced course on Africa.

Course Requirements

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

Foreign Language Requirements

The College of Liberal Arts requirement for the B.A. in 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

457 Contemporary Africa 3 s.h.

Intermediate Courses

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

Literature

80:142:258 Literature of the African Peoples 3 s.h.

129:100 African Drama 3 s.h.

129:156 African Literature 3 s.h.

129:419/418 Modern African Novel 3 s.h.

163:121/122 Translations Literature of the African Diaspora 3 s.h.

Art

161:107/109 Art of West Africa 3 s.h.

161:122/124 Art of Central Africa 3 s.h.

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

216:202 Seminar: Problems in African Art 3 s.h.

History

129:160 History of Pre-Colonial Africa 3 s.h.

161:123/124 History of Colonial Africa 3 s.h.

161:122/12170 Modern African History 3 s.h.

Social Sciences

30:146/141 African Development 3 s.h.

30:148 The Politics of Southern Africa 3 s.h.

Electives: 3 semester hours in any of the four areas.

Advanced Course/ Seminar

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

161:202 Seminar: Problems in African Art 3 s.h.

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

44:301 (sec. 222) African Food Class 1 s.h.

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

Aging Studies Program

Coordinator: Hermetta McClung

Advisory committee chair: LaVondale Pope (Sociology)

Advisory committee: Marita Derin (Home Economics), Samantha Ellis (Law), Donna Helling (Pharmacy), Albert W. Cook (Counseling Education), Bergman Hendrix (Sciences Education), Lenard F. McAllister (Counseling College), James R. Loshburg (Liberal Arts), Georgia Lopes (Continuing Education), Eunice McLendon (Nursing), Woodrow W. Morris (Medicine and Surgery), John P. Lohse (Psychology), Janet M. Satchley (Human Administration), Martin Tracy (Director, School of Social Work Gerontology Program), Thomas H. Wite (Social Work), Dennis J. Williams (Dance,Water)

Executive committee: Loretta Derrin, Dennis

Huling, Albert B. Houd, LaVondale Pope, Harper McClenan (ex officio)

Curricular committee: Benjamin Hsuan, Steven Hargrave, Donald Pope, Charles Snedeker, Emily McClung (ex officio)

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

Program Requirements

The Aging Studies Program involves 18 approved semester hours of coursework 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 intervention methods or techniques with the elderly or aging as the target.

Students are required to take an introductory aging course and complete 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 introductory aging course prior to or concurrent with other courses in the program. The research project or the practicum course should not be taken in the 9 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 careers interests and needs will be served by completing the program.

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

Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program includes required courses and a cognate course to support the remaining portion of coursework to be taken. The coordinator agrees to work closely with the student's approved program and his or her program. 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 or department. At least 12 of the 15 semester hours must be taken in advanced courses (300-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 course accepted in the program includes:

17:108 Basic Aspects of Aging
34:120 Aging and Society
42:184 Multidisciplinary Perspectives on Aging
96:125 Introduction to Gerontology

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

17:900 Cooperative Education Internship
17:115 Home Economics Internship

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

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

American Studies
45:13 Aging in America
Anthropology
115:136 Aging: A Cross-Cultural Perspective
Biology
37:271 Seminar in Cell Physiology

Business Administration
61:123 Public Economic Security Programs
Counselor Education
72:280 Topic Seminar in Counselor Education
Dentistry
132:145 Introduction to Geriatric Dentistry
Health and Hospital Administration
46:105 Long Term Care Administration
Home Economics
17:213 Individual and Family Development: Life Span (partial credit)
Internal Medicine
38:195 Geriatrics Seminars
Nursing
96:130 Normative and Psychopathological Aspects of Aging
96:131 Nursing Care of the Institutionalized Gerontological Client
96:231 Biophysical Concepts in Human Aging
Physical Education
27:112 Physical Activity and Aging
Recreation Education
104:146 Contemporary Issues in Recreation and Leisure
104:121 Aging and Leisure
Religion
32:183 Introduction to Bioethical Ethics (partial credit)
32:130 Death and Dying
Sociology
34:136 Social Psychology of Aging
34:230 Sociology of the Family (partial credit)
34:210 Aging and Human Development
Social Work
42:184 Aging and Social Work
42:185 Social Policy and the Elderly
42:220 Social Policy Issues in Health Care (partial credit)
42:380 Human Behavior: Selected Aspects
Speech Pathology
3:50 Seminar in Communication and Aging

American Studies Program

Claire Richard P. Horvitz
Profsessors: Wayne Frankol (English/American Studies); James Matthews (American Studies/English); Albert E. Stone (American Studies/English); Peter Neunert (English/African American Studies/English); Assistant professor: Richard P. Horvitz (American Studies)

American Studies Program

Assistant professors: Helga Wylde (African-American Studies/English); Jonathan W. Walton (African-American Studies/History)

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


In its course work and for its majors, the American Studies Program provides an interdisciplinary introduction to African 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 contributions of subcultures.

Undergraduate Program

Bachelor of Arts

The B.A. degree in American studies stresses broad training in cultural analysis and comparative analysis rather than specific professional or vocational training. It also provides preparation in areas of work in business, education, government, journalism, or 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, the student planning American studies development during first year of study courses 12 courses from cognate departments and programs with Integrative American Studies Program courses to explore a common period, topic, theme, or problem in American culture experience. The major usually consists of 12 courses normally totaling 36 semester hours and including four courses (12 semester hours) in American and/or African-American Studies and six courses (18 semester hours) in cognate departments and/or American Studies. The courses in American and/or African-American Studies usually include:

Required courses:

61: American Values
45:10 Utopia Points in American Culture

3 s.h.
3 s.h.
Two of the following:
45:2 American Issues
45:3 Women in American Culture
45:4 Family and Sex Roles
45:5 Media Studies
45:6 Regional Studies
45:7 Sex, Race, and Ethnicity
45:9 American Music
45:10 Readings in American Studies
45:12 Childhood and Youth in America
45:13 Aging in America
45:15 Visual Arts and American Culture
45:16 American Institutions: The Business Corporation
45:17 The Constitution and American Politics
45:18 American Institutions: The Constitution and Criminal Justice
45:19 Popular Culture
45:20 Introduction to Afro-American Society
45:21 Introduction to Afro-American Studies

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.

Horrors
Horrors candidates in American studies must take 45:90 Purging Points in American Culture and 45:190 American Studies Project. With this help, the student in 45:90 defines a research project on an American topics of the student's choosing, and proposes the results of the research in a written 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 taken at The University of Iowa in courses numbered 45:100 and above. 45:50 also may count toward this requirement.

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

The M.A. program in American studies includes 12 courses normally totaling 36 semester hours. Requirements include:

6 hours of American Studies

Three other courses or seminars in American studies or African-American World studies.

Two courses in American history (unless already taken as undergraduate courses).

Six or eight additional courses selected in relation to a topic or period of cultural history. These courses may be grouped to address more than one topic or problem, but must be chosen from more than one discipline or department.

Satisfactory performance on a comprehensive examination on course work and basic concepts.

The M.A. program is available with thesis or non-thesis options. In the 36 course hour option, the student must complete a total of 36 semester hours. In the thesis option, the student must complete a total of 39 semester hours, including 45:350 Special Graduate Projects. Successful completion of the comprehensive examination is required for graduation. The comprehensive examination includes a written comprehensive examination in one area chosen from the candidate's list of major areas.

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

Instead of writing a written examination, the candidate may complete a research thesis (M.A. degree thesis) on any topic chosen by the candidate. The candidate must complete the research thesis under the guidance of a faculty advisor. The thesis must be a substantial contribution to the field of study, and must be approved by the candidate's committee.

The final examination for the M.A. degree is an oral examination. The oral examination is an opportunity for the student to demonstrate knowledge of the subject matter and to defend the thesis. The oral examination consists of a presentation of the thesis and a question and answer session. The oral examination is administered by the candidate's committee.

Doctor of Philosophy
The Ph.D. program in American studies is a terminal degree or a degree preparation for the Ph.D. in American studies or a traditional discipline.

The Ph.D. program requires a minimum of 72 semester hours of coursework, covering the candidate in four areas: American studies courses and seminars in interdisciplinary approaches and methods; substantial coursework in one or more major fields; and courses in two or more minor fields, including one in a terminal area of study.

Although some flexibility in philosophy exists, the program requires a minimum of 72 semester hours of coursework, covering the candidate in four areas: American studies courses and seminars in interdisciplinary approaches and methods; substantial coursework in one or more major fields; and courses in two or more minor fields, including one in a terminal area of study.

The candidate normally takes 45:300 Theory and Practice in American Studies and 45:360 Special Graduate Projects. This course requires a minimum of 36 semester hours of coursework, covering the candidate in four areas: American studies courses and seminars in interdisciplinary approaches and methods; substantial coursework in one or more major fields; and courses in two or more minor fields, including one in a terminal area of study.

The standard program takes five, six, or seven courses in each of the minor areas. Four hours are normally earned in each of the major areas, together with the interdisciplinary projects. Each course consists of two or more areas.

Courses
Primarily for Undergraduates
45:00 Cooperative Education Internship
45:31 African-American Studies

Courses for American studies via representative forms.

45:00 Cooperative Education Internship 4.5 h.
45:30 American Studies 3.0 h.
Graduate Programs

Master of Arts

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

The department offers the M.A. degree with or without thesis. The program without thesis specifies a condition for admission to the Ph.D. program.

The number of semester hours of credit required for the M.A. with thesis may vary from 32 to 36, depending upon the student's previous anthropological training. The thesis portion 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.

113240 Seminar: Social Anthropology
113305 Seminar: Anthropological Theory
These four courses:
113317 Anthropological Linguistics
113340 Seminar: Archeological Theory and Method
113380 Seminar: Biological Anthropology
113392 Anthropological Data Analysis

Two courses from the following subject areas:
Social institutions
Learning and teaching
A third course in the Department of Linguistics, and Ancient Near East.

No more than 9 semester hours of course outside of anthropology and no more than 3 semester hours of independent study may be applied toward the M.A. degree requirements in anthropology.

Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the above distribution requirements.

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

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museology. Details of course 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 arranging for training and guidance.

These are the requirements:
All course work completed within 72 semester hours of graduate course work.
Demonstration of a reading knowledge of one foreign language.
Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, or paleoecology).

Ethnographic or archaeological specialization in a major geographic area (for example, North America, Mesoamerica, Oceania, Southeast Asia, the Caribbean, Europe), approved by the student's advisory committee.

Specialization in a major and minor topical area:
A written comprehensive examination in the student's area of specialization.
Preparation and oral defense of a dissertation.

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

All doctoral candidates are required to be adequately trained in techniques of archaeological or ethnographic field research.

Admission

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

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

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.
emphasize on worldwide contemporary social change. Same as EN 300L, 310L.

115-123 Analytical Anthropology of Household Economy

3 a.h.

Focus on economic production as a different economic system, how they distribute production and operation in larger economic systems.

115-124 Economic Anthropology

3 a.h.

Economic decision making and institutional structures associated with production, distribution, and consumption of goods. Use of economic paradigm in studying social, political, and religious aspects of economic adjustment and development.

115-125 Ethnology of Religion

3 a.h.

Examination of anthropological approaches to the study of religion, including historical, cultural, and theoretical perspectives. Understanding the place of religion in social and cultural change.

115-126 Environment and Culture

3 a.h.

Individuals shape their cultures by the forces of natural resources and, in turn, ways of life change. Same as EN 126.

118-119 Political Anthropology

3 a.h.

Political anthropology of social and political development in the study of political behavior and the role of power and social control in political change. Same as S 243.

115-128 Symbolism and Structure

3 a.h.


115-129 Cognitive Anthropology

3 a.h.

Current research and development of ideas regarding cognitive anthropology, cognitive representation, and non-linear change.

115-130 Introductions to the Study of Kinship

3 a.h.

Introduction to the study of kinship, emphasizing the role of kinship in social and cultural organization.

115-131 Introduction to Ethnography

3 a.h.

Introduction to ethnography and research methods, its major proponents, E. E. Evans-Pritchard, M. Fortes, E. R. Leach, V. Alaye, E. E. Leach.

115-132 Race and Ethnic Relations

3 a.h.

Multicultural study of minority relations. Special emphasis given to historical, cultural, and social development in the study of race relations. Same as S 243.

115-135 Seminar: Anthropology of Women

3 a.h.

Study of anthropological approaches to female roles and issues, same as 110L.

115-136 Seminar: Anthropological Theory

3 a.h.

Examination of anthropological theories and their relationship to social and cultural development.

115-137 Seminar: Biological Anthropology

3 a.h.

Examination of anthropological approaches to biological systems and their relationship to social and cultural development.

115-140 Linguistics

2 a.h.

Examines language and linguistics, specifically the study of language, as well as its relationship to social and cultural development.

115-140 Archaeology

2 a.h.

Study of archaeological materials recovered in excavation and surveying. Methods and techniques of archaeological recovery.

115-143 Archaeology of Maussana

2 a.h.

Examination of anthropological approaches to the moorish civilization of Maussana (Venezuela). Same as 110L.

115-144 Cooperative Preliminary

3 a.h.

Cooperative approaches to the Cooperative Preliminary projects, with emphasis on the projects' relationship to current research and development in anthropology.

115-145 History of Anthropology

2 a.h.

Introduction to the history of anthropology, its major proponents, its relationship to social and cultural development.

115-146 Archaeology of Africa

2 a.h.

Introduction to anthropological approaches to African societies and cultures, same as 110L.

115-147 North American Archaeology

2 a.h.

Introduction to anthropological approaches to North American societies and cultures, same as 110L.

115-148 Prehistoric Voyages in the New World

3 a.h.

Introduction to anthropological approaches to prehistoric voyages in the New World, same as 110L.

115-149 Social Anthropology

3 a.h.

Introduction to anthropological approaches to social systems and cultures, same as 110L.

115-150 Seminar: Anthropological Theory and Method

3 a.h.

Study of anthropological approaches to theory and method, same as 110L.

115-151 Field Research in Anthropology

3 a.h.

Field research in anthropology, same as 110L.

115-152 Seminar: Biological Anthropology

2 a.h.

Examination of anthropological approaches to biological systems and their relationship to social and cultural development.

115-153 Archaeology

2 a.h.

Study of archaeological materials recovered in excavation and surveying. Methods and techniques of archaeological recovery.

115-154 Linguistics

2 a.h.

Examines language and linguistics, specifically the study of language, as well as its relationship to social and cultural development.

115-155 Language and Culture

2 a.h.

Language and culture, orientation, and social and cultural development.

115-156 Seminar: Anthropological Linguistics

2 a.h.

Seminar on anthropological approaches to language and culture, same as 110L.

115-157 Individual Reading and Research Projects

3 a.h.

Seminar on reading and research projects, same as 110L.

115-158 Thesis

3 a.h.

Thesis.

Applied Mathematical Sciences

Set "Division of Mathematical Sciences."

Art and Art History

Director: Walter C. Tombaugh

Professor: Kurt Ackerman, Richard Abellio, Robert Altman, Wayne Bishop, Hiroshi Ikeda, Charles Jones, Robert Kanno, David Levey, Ronny McBride, Ben Mosk, Virginia Merriam, Joseph Nance, Howard Rudolph, John Schmitt, William Tomak, Marilyn Zemansky

Associate Professors: John Ong, Peter Fiedorow, Stephen Foster, Jon Hagevanger, Robert Metz, Christopher Now, Stephen Schultz, Jeresa Strojny, Martha Tufts-Finlay, Norman Tucker, George Wahlgren

Assistant Professors: Robert Glasgow, Patricia Hamel, H. K. Miller, Anne Robert, John Scott, Wayne Stoffregi, Jeff Spears, Jan-Telfer Steiner, J. R. Searle, S. A. S. N. F. J. E.

The University of Iowa School of Art and Art History pioneered the artist-teacher concept, teaching its teachers on the basis of the quality of their work rather than the number of their students. It was one of the first university-based art schools to bring established professional artists to its permanent faculty.

It was also among the first schools of art to join studio art with art history studies, reflecting the concept that the young artist benefited from a formal study of the traditions of art, and a perspective from personal experience with the creative process.

Emphasis on the creative productivity of its faculty reflected as educational philosophy that made Iowa one of the first universities to accept creative work for academic credit.

The school evolved a tradition of, and achieved national recognition for, presenting large exhibitions of contemporary American painting and sculpture.

In its national and position are reflected in the art history and art history programs at the University of Iowa Art Museum of Art. Its program of exhibitions, and its growing collection of art works of all periods and nations, but also through its curatorial programs, employing young artists and scholars of national and international prominence.

The quality of its undergraduate and graduate workshops in art history continues with the emphasis on an excellent core curriculum and a large collection of visual materials. The employment of visiting lecturers, in addition to the permanent faculty, the short-term workshops continue to keep students directly involved with current scholarship.

A number of the school's graduates are actively practicing as professional artists. In addition, the University's art history and art history programs at the University of Iowa Art Museum of Art. Its program of exhibitions, and its growing collection of art works of all periods and nations, but also through its curatorial programs, employing young artists and scholars of national and international prominence.

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Undergraduate Programs

Bachelor of Arts

The B.A. candidate in art or art history must earn at least 71 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, 1H16, and 1H16) 6 s.h.

Two additional courses exclusive of those courses listed above 6 s.h.

1A1-1J2 C oraziership 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.

1J34 Introduction to Metallurgy and Materials 2 s.h.

1J50 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:

Design
1D21 Problems in Design I 6 s.h.

1D22 Problems in Design II 6 s.h.

1D25 Lettering I 3 s.h.

1D26 Graphic Design I 3 s.h.

Drawing
1P7 Life Drawing I 3 s.h.

Painting
1K9 Painting I 3 s.h.

1K10 Painting I 3 s.h.

Photography
1C34 Beginning Photography 3 s.h.

Printmaking
1M51 Undergraduate Printmaking I 3 s.h.

Fiber Art
1P191 Printing and Dyeing 3 s.h.

1P192 Weaving 3 s.h.

Electives to bring the total number of credits in history of art, studio, or art education combined to a minimum of 38 semester hours.

No more than 50 semester hours of credit in art courses that the school has will be counted toward the total of 124 semester hours required for the degree.

Transfer students majoring in studio must complete 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, 1H16, 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.

Honors students in art history must maintain a maximum grade-point average in art history of 3.3, 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 each.

Non-art credits must include two or more semesters of a second foreign language, and at least 12 semester hours in at least three disciplines, including two of the following: anthropology, classics, drama, history, language, literature, music, philosophy, religion, or sociology.

Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the student's required minimum registration for courses in art history and studio.

Art Education

Students seeking the B.A. degree in art education may choose either the studio or art history emphasis, satisfying the requirements described above and, in addition to the general requirements for teacher certification (see the "College of Education" section of the Catalog), must satisfy three specific requirements:

1E196 Concepts in Art Education 3 s.h.

1E198 Art Education Studio 3 s.h.

7E143 Methods: Art 3 s.h.

7E165 Advanced Methods: Art 3 s.h.

7E157 Seminar: Curriculum and Studio Practice 3 s.h.

7E192 Lab Practice in Elementary Education 3 s.h.

7E101 Observation and Lab Practice in Secondary School 3 s.h.

The following course is elective:

1E203 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 after completing 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 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 for the B.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 coursework in each of two additional studio areas. Art education majors in the B.F.A. program...
must meet the same written 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. students in art history a prospective graduate student with a B.A. or B.F.A. degree, with at least 18 semester hours of undergraduate work in art history: A minimum of 30 semester hours of graduate and city work, with a grade-point average of 3.0 or higher, and at least a 3.0 cumulative average in each of the following areas of art history: Ancient (to 300 A.D.), Medieval (300-1500), Renaissance to Baroque (1500-1700), Nineteenth Century and Pre-Columbian. Course distribution for the M.A. in art history is as follows: HI 294 Seminar: Methodology of Art History and Criticism 3 s.h. Two other art history seminars (with different instructors) 4-6 s.h. Additional art history courses 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 fields must take 12-18 semester hours of studio work, with a minimum of 9 semester hours in one subject, in addition to the undergraduate requirement for the studio major, and must also satisfy the drawing requirement. Studio courses may be taken on a satisfactory/unsatisfactory basis. M.A. candidates with undergraduate majors in art history are required to take courses outside the school. Within the first 20 semester hours of graduate work, the M.A. candidate is expected to demonstrate the ability to read art historical writings in an appropriate foreign language, namely German or French, through oral examinations, including Oriental languages, may also be acceptable. This requirement may be fulfilled by an examination of 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, broadly covering the entire field of art history. The student must prepare either a written thesis, for which 3 semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages).

Master of Arts in Studio

The school offers the M.A. degree in studio with a major in ceramics, metalwork, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The degree requires: The B.F.A. or B.B.A. is equivalent to that offered at the University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements). A minimum of 38 semester hours of graduate work, including at least 12 semester hours in a major studio subject, a total of at least 21 semester hours in studio courses, 3 semester hours in the history and theory of art, and up to 8 semester hours of courses outside art and art history. Clearance for M.A. candidacy by faculty review; and Studio and written theses. Studio majors may elect to take art history courses on the satisfactory/unsatisfactory basis. Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year. A student preparing to teach in both the studio and art history areas may complete an art history major of 15 semester hours, including HI 294 Seminar: Methodology of Art History and Criticism, and one other seminar. Three hours are in addition to the University's undergraduate requirement for an art history major (except for the second foreign language), and, in combination with the undergraduate hours, must satisfy the distribution requirement in art history. Master of Arts in Art Education

Requirements for the M.A. in art education are: The B.A. or B.F.A. is equivalent to that offered at The University of Iowa. Teaching certification in art: Completion of 38 semester hours of graduate credit, including 18 semester hours of studio art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education and 12 semester hours to be specified after the student completes the program. An oral and/or written examination in art education; A written thesis based on research in art education or art history in a studio theses committee. This examination is accompanied by a broad statement of the student's technical, aesthetic, and psychological approach and, as in the M.A. degree in studio, clearance for M.A. candidacy by faculty review.

Art education majors may elect to do a studio thesis and those who have had drawing at The University of Iowa are required to take at least one drawing course, selected from the school's regularly scheduled drawing courses, during the first year of residence; Art education majors may elect to take art history courses on the satisfactory/unsatisfactory basis.

Master of Fine Arts (Studio Only)

The school offers the M.F.A. degree with 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 a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 0 semester hours in a minor studio field, 5 semester hours in art history and art theory of art, and 8 semester hours in courses originating outside the school; clearance for M.A. candidacy by faculty review; and studio and written theses. 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 specialized knowledge of arts history and the history of art and art history. The student is expected to have a concentration in special areas of art history, but these may be selected at the student's discretion in consultation with graduate faculty members in the school. No more than 38 semester hours of credit earned in any M.A. program may be applied toward the M.A. program.
toward the 72 semester hours required for the Ph.D. The University of Iowa residence requirement for the doctorate must be met in at least 24 semester hours of graduate work.

Course requirements beyond the M.A. program outlined above are:

- Two art history seminars (with two different instructors) 4-6 s.h.
- Additional art history courses 18-28 s.h.
- Courses outside the curriculum 30 s.h.

Students holding the M.A. from another institution must take the school's M.A. comprehensive examination in art history. The first two regularly scheduled examination dates following admission:

Within the first 15 semester hours of graduate work beyond the M.A., the student must demonstrate ability to read art historical writings in two appropriate foreign languages. For majors in European art, one language normally will be German, for majors in Oriental art, Sanskrit, Chinese, or Japanese may be acceptable. The procedure for satisfying the Ph.D. language requirements is as explained in the description of the M.A. in art history program.

The student must take a comprehensive examination in one major field (6 hours) and two minor fields (3 hours each) selected by the student in consultation with the student's advisor. Students may take the examination at the major; this may be in a discipline or disciplines outside the school—for example, religion, history, or philosophy.

In order to prepare a written dissertation, an original scholarly contribution to the field. The student must also complete 12 semester hours of credit toward the art history course requirements for dissertation preparation. The student must formally present the dissertation topic for faculty approval. The student is given a final oral examination on the dissertation.

Graduate Admission: Studio Admission procedures for graduate studio programs are listed under the appropriate review of applications and all of the applicant's supporting materials. The school should be consulted for meeting dates.

Ceramics, design, metalworking or jewelry, multimedia or video art, or paper art majors must submit slides and/or photographs of their work in their major fields; only applicants who are resident at the University may submit original work in these areas. Drawing majors must submit original drawings, which must include figure drawings. Painting majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should send 40 black-and-white photographs—or slides, if color is important—of their work. Studio applicants also must submit examples of their work in other areas and three letters of recommendation.

Newly admitted students who do not register within two semesters of their admission must reapply. Students who are not admitted for a limited time, then register for a period of 36 months or more, must apply for readmission.

Graduate Admission: Art History and Art Education

Applicants to the graduate program in art history must submit a term paper or other example of ability to write in the field. Applicants in art education must submit a term paper or other example of ability to write in the field, and a selection of slides or photographs of their creative work in two studio areas. All applicants must submit three letters of recommendation.

Deadline for receipt of completed art history and art education applications is June 15 for the fall semester, November 15 for the spring semester, or April 15 for summer session.

Newly admitted students who do not register within two semesters of their admission must reapply. Students who are not admitted for a limited time, then register for a period of 36 months or more, must apply for readmission.

Assistantships and Scholarships

Assistantships paying approximately $8,140 per academic year, plus 40 hours of departmental duties weekly, are awarded to graduate students on a competitive basis. One-quarter-time assistantships also are available. The award of an assistantship entitles the recipient to the Iowa resident tuition rate. Scholarships paying partial or full tuition and entailing no departmental duties require at least a 2.5 cumulative grade-point average. These financial aids usually are awarded to students who have been in residence for at least one semester, so that faculty members have had an opportunity to observe their performance and potential.

Facilities

School facilities include an art library containing 64,000 volumes; a visual materials library containing 225,000 slides and 90,000 photographs; an integral printshop; furnaces and equipment for large-scale iron and bronze casting processes as well as facilities for welding and for casting of steel sculpture; a well-equipped darkroom; extensive kilns facilities including potteries for construction of various types of temporary and specialized kilns; a large shop for wood-carving, metalworking, and industrial design—electroforming equipment; a papermaking mill, typography studio, and video equipment.

Courses

Art History

Primarily for Undergraduates

1H1 Understanding the Visual Arts 2 s.h.
Exploration of the ethereal and symbolic aspects of art required for an understanding of the ways the visual arts have shaped our lives.

2H1 The Art of Tribal Cultures 3 s.h.
Traditional arts of the tribal cultures of Black Africa and the Pacific, and of the American Indians before the European conquest.

2H2 Art and Religious Innovation 3 s.h.
Analysis and interpretation of amuletic images produced for world religions.

2H3 Masterpieces of World Art
In-depth analysis and interpretation of selected masterworks of architecture, painting, and sculpture.

2H5 Western Art and Culture before 1400 3 s.h.
Interactions among art, religion, and the culture of the primitives, aristocrats, and merchant classes.

2H6 Western Art and Culture after 1400 3 s.h.
Interactions among art, the great wealth, and culture from the Renaissance to the Romanticism.

2H7 Islamic Art and Christian and Jewish Art 3 s.h.

2H8 Introduction to Asian Art 3 s.h.
Art of India, China, Japan, and Korea. Same as JH 352.

2H9 Introduction to African Art 3 s.h.
Art and architecture of Mediterranean civilizations from West Asia to age of Enlightenment. Same as AS 245.

2H10 Introduction to Medieval Art 3 s.h.
Art and architecture in Europe from 300 to 1500 A.D.

2H17 Introduction to Renaissance Art 3 s.h.
Art and architecture in Europe from late 15th to early 16th centuries. Same as AS 295.

2H18 Introduction to Baroque Art 3 s.h.
Art and architecture in Europe from 1610 to 1715.

2H19 Introduction to Romantic Art 3 s.h.
Art and architecture in Europe and United States from late 1776 to 1850.

2H20 Introduction to Symbolic Art 3 s.h.
Architecture, painting, printmaking, and sculpture from clinical time to present.

2H50 Survey of Art History 2 s.h.
Survey research and writing for honors majors. May be repeated.

For Undergraduates and Graduates

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

1H10 Art of the Latin Pacific 3 s.h.
Traditional arts of Navarre, Mexico, and Peru.

1H20 Art of Pre-Columbian America 3 s.h.
Art and architecture of Mexico and Peru before contact.

1H29 Art of Africa 3 s.h.
Art and Architecture of the Western Sudan and the Guinea Coast. Same as 12H1.
For students of Japanese:
391-101-11 Second-Year Japanese
12 s.h.
391-106 Third-Year Japanese
12 s.h.
391-141 Traditional Japanese Literature in Translation
3 s.h.
391-142 Modern Japanese Fiction in Translation
3 s.h.

For students of Sanskrit:
393-23-24 Second-Year Sanskrit
6 s.h.
*393-186-187 Third-Year Sanskrit
6 s.h.
393-135-136 Indian Literature
6 s.h.
393-163 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 the foreign language requirement.

Indian, Hindi, Japanese, or Sanskrit
This program is intended for students who want to achieve an ability to speak, understand, read, and write Chinese, Hindi, 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:
391-101-11 Second-Year Chinese
12 s.h.
391-106-108 Third-Year Chinese
12 s.h.
391-141 Chinese Literature and Poetry
3 s.h.
391-142 Chinese Literature: Prose
3 s.h.

For students of Hindi:
393-23-24 Second-Year Hindi
6 s.h.
*393-186-187 Third-Year Hindi
6 s.h.
393-135-136 Indian Literature
6 s.h.
391-187 Indian Devotional Literature in Transliteration
3 s.h.

*With the approval of the major adviser, students may substitute 6 semester hours of 100-level courses in South Asian studies for the foreign language requirement.

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 include approximately 75,000 books, periodicals, and manuscripts. It is particularly strong in literature, history, and philosophy, and it is constantly being augmented.

Courses
Undergraduate Language

Course Title
Credits

381-141 Indian Civilization
1 s.h.

381-142 English
6 s.h.

381-151 Introduction to Modern Mandarin
6 s.h.

381-23-24 Second-Year Sanskrit
6 s.h.

381-23-24 Third-Year Sanskrit
6 s.h.

381-101-11 Second-Year Japanese
12 s.h.

381-106 Third-Year Japanese
12 s.h.

381-141 Traditional Japanese Literature in Translation
3 s.h.

381-142 Modern Japanese Fiction in Translation
3 s.h.
Individual Study for Advanced Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>101 Hours Tutorial</td>
<td>Offered on satisfactory-tuition basis.</td>
</tr>
<tr>
<td>30</td>
<td>105 Senior Honors Thesis</td>
<td>Offered in senior year only.</td>
</tr>
<tr>
<td>30</td>
<td>103 Methods of Teaching Chinese</td>
<td>3 s.h. Introduction to basic principles of elementary language teaching.</td>
</tr>
<tr>
<td>30</td>
<td>190 Methods of Teaching Japanese</td>
<td>3 s.h. Introduction to basic principles of elementary language teaching.</td>
</tr>
<tr>
<td>30</td>
<td>111 Individual Chinese for Advanced Students</td>
<td>Individually selected research and translation projects for students whose written and spoken Chinese is beyond that level. Approval of instructor is required.</td>
</tr>
<tr>
<td>30</td>
<td>115 Individual Japanese for Advanced Students</td>
<td>Individually selected research and translation projects for students whose written and spoken Japanese is beyond that level. Approval of instructor is required.</td>
</tr>
<tr>
<td>30</td>
<td>114 Individual Seminar for Advanced Students</td>
<td>Individually selected research and translation projects for students whose written and spoken Japanese is beyond that level. Approval of instructor is required.</td>
</tr>
<tr>
<td>30</td>
<td>117 Individual Haitian for Advanced Students</td>
<td>Selected topics in mediocr and modern Haitian. Approval of instructor is required.</td>
</tr>
<tr>
<td>30</td>
<td>351 A.H. Thesis</td>
<td>Offered during second year.</td>
</tr>
<tr>
<td>30</td>
<td>352 A.H. Thesis</td>
<td>Offered during third year.</td>
</tr>
</tbody>
</table>

Astronomy

See "Physics and Astronomy."
of vocations in which biochemistry has an important role. It is also possible for a B.A. student in biochemistry to complete the specified course requirements in three years and satisfy the requirements for the remaining advanced science electives during the first year of dental or medical school.

Graduate Programs, Facilities, Faculty, Courses

See "Biochemistry" in the "College of Medicine" section of the Catalog for descriptions of the department's graduate programs and facilities, and for its faculty roster and course offerings.

Biology

Chair: John R. Meszinger


Professors emeriti: Harold Beans, Luther O. North, Stetson S. Sibley

Associate professors: Jeffrey L. Denberg, Howard Doern, Leslie K. Johnson, Robert E. LaMotte, Jennifer Wang

Assistant professors: Greg A. Freyer, Jin Jang, Chung Ling Lin, Sea E. Yia

Adjunct assistant professor: John M. Nelson

Degrees offered: B.A., B.S., M.S., Ph.D., jointly administered with the department of Botany.

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 science-related fields. The classes are taught by health-oriented professors, 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 students 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 in 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 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 program in ecology and evolutionary biology and the use of the Macotra Nature Reserve 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)

2:1 Introduction to Botany 4 s.h.
373 Principles of Animal Biology 5 s.h.
371-372 Fundamental Genetics 3 s.h.
371-372 Fundamental Genetics Laboratory 2 s.h.
371-051 Evolution 4 s.h.
371-051 Cell Physiology 4 s.h.
Electives in biology, botany, microbiology, or geology (Paleobiology) 12 s.h.

*These courses are cross-listed in the botany department.

The 12 elective semester hours in biology must be in courses numbered 100 or above, but courses may be used as electives only if students are majors in non-science students. Also, the elective credit may not include more than 3 semester hours in biology and botany honors courses, 2453 Special Topics, and 371-372 Introduction to Research. The elective courses can include up to 4 semester hours of advanced coursework in the physical sciences (physics, chemistry, geology) in specific courses in the basic science subjects of the College of Medicine, or in mathematics courses that have 1st-semester calculus as prerequisite. The general ideas in choosing these courses are that they are numbered 100 or above and carry elementary course prerequisites; they are used primarily for science majors; and do not include the required courses in cognate sciences listed below. Students should choose elective courses in consultation with their advisors.

Required courses in other disciplines (28-29 s.h.)

413-414 Principles of Chemistry I-II 6 s.h.
416 Principles of Chemistry Laboratory 2 s.h.
417 Organic Chemistry I 3 s.h.
417-020 The Chemistry of Biological Materials 3 s.h.
291-112 College Physics I-II 8 s.h.
291-178-179 Intermediate Physics I-II 8 s.h.
22M-225 Calculus I 4 s.h.
22M-226 Calculus II 4 s.h.
22M-227 Calculus III 4 s.h.

Bachelor of Arts

The B.A. program provides more opportunities 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)

2:1 Introduction to Botany 4 s.h.
373 Principles of Animal Biology 5 s.h.
371-372 Fundamental Genetics 3 s.h.
371-051 Evolution 4 s.h.
371-051 Adaptation and Natural Selection 4 s.h.

An investigative laboratory course:

371-056 Developmental Biology Laboratory 2 s.h.
371-128 Comparative Physiology Laboratory 2 s.h.
371-372 Fundamental Genetics Laboratory 2 s.h.
371-055-056 Quantitative Field Ecology 5 s.h.
371-352 Embryology Laboratory 2 s.h.
371-385 Techniques in Neurobiology 4 s.h.
2127 Enzyme Purification and Characterization 4 s.h.
Electives in biology, botany, microbiology, or paleontology 11 s.h.

*bThese courses are cross-listed in the botany department.

**Hours in the investigative laboratory course required in excess of two may be applied toward elective credit.

If 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 nonscience biology may be in 26104 Introduction to Philosophy of Science or 16133 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 (15-17 semester hours)

413-414 Principles of Chemistry I-II 6 s.h.
416 Principles of Chemistry Laboratory 2 s.h.
417 Organic Chemistry I 3 s.h.
417-020 The Chemistry of Biological Materials 3 s.h.
291-112 College Physics I-II 8 s.h.
291-178-179 Intermediate Physics I-II 8 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, gaining an introduction to the pursuit of practicing scientists—experiments, discussions of current research, work on specialized topics, and attendance at research lectures.

Students in the College of Liberal Arts Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors course work in the departments of Biology and/or Botany, including at least 2 semester hours in 37:196 Honors Laboratory Research or 2:196 Honors Laboratory Research at least 2 semester hours in 37:197 Honors Readings 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, in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs

The graduate programs in the department which are jointly administered by the Department of Botany, are designed to prepare students for different kinds of professional activities, including teaching at various levels, participation in research in private, educational, or government laboratories, and service involving planning or administrative functions. In the last two decades, some 50 Ph.D. graduates of this department have subsequently been engaged in college or university teaching, while most of the others are in research positions. A substantial number of students completing their training with an M.S. degree have obtained technical or professional positions, some of which require independent responsibility in administering research or programs. 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 areas 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, developmentology, 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 those departments.

On admission, each new graduate student is assigned a temporary advisor, chosen to complement the research interests of the student. The temporary advisor guides the student through initial requirements and acts as the student's advocate. For purposes of graduate student evaluation, research training is categorized by four designations: developmental biology, ecology and behavior, genetics, and physiology. A committee of faculty from the area represented by the temporary advisor evaluates the student initially; after a time, students choose a permanent sponsor (adviser) and a Ph.D. advisory evaluation 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, it takes 8 semester hours are assigned to these research and writing. The remaining hours are selected in consultation with the advisory committee; the choice of courses is tailored to the student's background and career goals.

Students receive credit for courses they are required to take but not for courses required by the admissions committee to make up undergraduate deficiencies. After the thesis is accepted, candidates must pass an oral examination based on the thesis and related subjects.

The M.S. degree without thesis requires 34 semester hours of graduate credit, and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student's thesis committee and are tailored to foster 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—count toward the diagnostic examination
Botany/LIBERAL ARTS

Mathematics Requirement

22M:15 Mathematics for the Biological Sciences 4 s.h.
or
22M:19 Elementary Functions 3 s.h.
A statistics course:
22S:102 Introduction to Statistical Methods
(or an equivalent course) 3 s.h.

Bachelor of Arts

The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S. In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

Botany and biology requirements:
2.1 Introduction to Botany 4 s.h.
22M:16 Calculus for the Biological Sciences 3 s.h.
or
22M:19 Elementary Functions 3 s.h.
22M:25 Calculus I 4 s.h.
Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

Honor's

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by faculty members.
In addition to the regular requirements for the B.A. and B.S. degrees, honors students must:

Maintain an overall grade-point average of 3.2;
Maintain a minimum grade-point average of 3.2 in all botany and biology courses;
Complete 44 semester hours of honors course work with a minimum of 4 semester hours of Honor Research (2196).

Present a written research report (honors thesis), which has been approved by the student's research supervisor, to the botany honors advisor; and

Defend his or her honors thesis before a committee composed of the botany honors research advisor, the student's research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor

The botany minor requires 15 semester hours of credit in botany. At least 12 of these semester hours must be taken at The University of Iowa in courses numbered 2100 and above.

Graduate Programs

An advanced degree enhances career opportunities in botany. The department offers advanced degree work in anatomy, botany, cell biology, ecology, genetics, development and morphogenesis, mycology, paleobotany, physiology, plant biochemistry, and taxonomy. Graduate training frequently involves interdisciplinary study requiring some course work in cognate departments. Each graduate student is assigned a faculty guidance committee to help him or her set educational goals and plan the course requirements necessary to meet them.

Master of Science in Botany

The botany department offers two distinct M.S. degree programs. The M.S. with thesis and the M.S. without thesis. 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 consisting of 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 (2225) 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 for an oral examination instead of a written examination); follow within a week 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 (±3 for the M.S. without thesis, above);
Complete at least 36 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee; nine hours of research and thesis (2225 and 2229) are required; additional research hours may be taken, but no more than five may be counted toward the 36-hour degree requirement;
Achieve a grade point average of 3.0 on all courses—other than research—attempted up to the time of the final examination;
Prepare a thesis on research conducted;
Defend the thesis in an examination during the term in which he or she is to graduate.
Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. It may be earned after the student has conducted original research of sufficient magnitude and value to allow the thesis to be written and successfully defended before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by his or her guidance committee. Hours earned by 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 approved proposal will be distributed to the candidate to all faculty members of the botany department;

Give an oral presentation of the proposed research work to members of the botany department within a six-month period following acceptance of the initial research proposal; the candidate thereby will be eligible for 1 semester hour credit under 2221;

Seminar Botany (see section 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 design, 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 1110 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 (AU) 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 560 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 research assistantships or fellowships may submit an application for graduate awards form 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, vary from year to year depending on the availability of funds. The types of appointments and support are teaching assistantships and research assistantships (see fall-term or one-quarter-time), teaching-research fellowships (TRF), 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. Appointments 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 in research assistantship for two or three years. The final year of appointment is free of service requirements, permitting a student to devote full time to research or thesis writing. The Graduate College requires that teaching-research fellowships be awarded to students from other countries or students from the University of Iowa who have not taken graduate work.

Genetics research assistantships are awarded by the interdepartmental genetics program from University funds. All assistantships 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 four teaching and four research assistantships in recent summer sessions. Summer session stipends are two-thirds of the academic year salary. Awards are made for one-half-timework service or 20 hours of per week for the eight week summer session. Selection of teaching assistants for the summer is made by the instructor in charge of the course to be served.

Faculty members with individual grants-in-aid may wish to employ one-half-time or one-quarter time research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from departmental resources. Graduate College and departmental regulations and standards apply to these appointments.

Grants-in-aid for graduate students: Agencies such as NIH, NSF, and Sigma Xi make grants-in-aid to graduate students. Announcements 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 to specialized rooms with controlled environments. A plant physiology laboratory with associated greenhouse facilities is available.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in botany, plant morphology, photosynthesis, biochemistry, biochemical systems, plant biosynthesis, cytogenetics, ecophysiology, polinium biology, morphogenesis, and cell biology. There are two transmission electron microscopes in a special lab which most of the graduate researchers and faculty may use the scanning electron microscope laboratory in the Science Data Building.

As a result of research and general activity, the program's student body is well represented in the professional activities of national and local societies. It is estimated that 10% of the annual student body is engaged in research activities. Some of the research activities include: the study of plant taxonomy, systematics, morphology, and evolution.

Courses

Primarily for Undergraduates

2.1 Introduction to Botany

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

3.0 Iowa Flora

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

3.1 Biology of the Local Flora

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

3.2 Plant Propagation

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

3.3 Spring Flora

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

3.5 Plants and Human Affairs

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

3.6 Plant Diversity

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

4.0 For Undergraduates and Graduates

4.1 Plant Taxonomy

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

4.2 Plant Physiology

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

4.3 Introductory Genetics

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

4.4 Plant Physiology

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

4.5 Plant Ecology

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.

4.6 Plant Systematics

This course is designed for students interested in the study of plants and their interactions with the environment. This course provides an introduction to the study of plants and their role in the ecological process.
Graduate Programs

Master of Science

The department offers the M.S. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. degree must demonstrate competence in the graduate level in analytical, inorganic, organic, and physical chemistry by passing specific examinations (given twice a year) or by scoring 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 2.5 is required for admission to the master’s examination.

PhD of Chemistry

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

Students who have met the course requirements with a cumulative grade-point average of 3.0 are admitted to the oral comprehensive examination 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 and the Supervisory Committee submit the final examination in course work or the dissertation. 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 mathematics and in chemical physics. "Graduate Preparatory" work in the past is the basis of the above graduate degree, in the field of students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Admission

An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students who are admitted receive financial support, and application forms may be obtained by writing to the Department of Chemistry.

Facilities

The department is housed in a four-story building containing two auditors, 10 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instrument rooms. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and comprehensive volumes of chemical and chemical engineering journals, and subscriptions to a large number of current scientific journals.

Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 415, 416, 445, 453, and 454. Students planning to take only one year of chemistry should take 413, 414, 443, and 444. 600 Cooperative Education Internship 9 a. h.

411 Analytical Chemistry I 3 a. h.

412 Analytical Chemistry II 3 a. h.

417 Organic Chemistry I 3 a. h.

418 Organic Chemistry II 3 a. h.

419 Principles of Chemistry I 4 a. h.

420 Principles of Chemistry II 4 a. h.

421 Physical Measurements 3 a. h.

425 Inorganic Chemistry Laboratory 3 a. h.

430 Introduction to Chemistry 3 a. h.

435 Qualitative Analysis 3 a. h.

436 Elementary Quantitative Analysis 3 a. h.

437 Basic Research Techniques 3 a. h.

438 Introductory Chemistry 3 a. h.

439 Physical Chemistry I 4 a. h.

440 Physical Chemistry II 4 a. h.

441 Physical Chemistry Laboratory 3 a. h.

442 Inorganic Chemistry Laboratory 3 a. h.

443 Physical Measurements 3 a. h.

445 Quantitative Analysis 3 a. h.

446 Thermodynamics 3 a. h.

447 Quantum Mechanics 3 a. h.

448 Quantum Mechanics Laboratory 3 a. h.

449 Physical Measurements 3 a. h.

450 Inorganic Chemistry Laboratory 1 a. h.

452 Inorganic Chemistry Laboratory 3 a. h.

453 Organic Chemistry Laboratory 3 a. h.

454 Physical Measurements 3 a. h.

455 Inorganic Chemistry Laboratory 1 a. h.

456 Inorganic Chemistry Laboratory 3 a. h.

457 Organic Chemistry Laboratory 3 a. h.

458 Physical Measurements 3 a. h.

459 Inorganic Chemistry Laboratory 1 a. h.

460 Inorganic Chemistry Laboratory 3 a. h.

461 Physical Measurements 3 a. h.

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467 Organic Chemistry Laboratory 1 a. h.

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500 Physical Measurements 3 a. h.

501 Inorganic Chemistry Laboratory 1 a. h.

502 Inorganic Chemistry Laboratory 3 a. h.

503 Physical Measurements 3 a. h.
201-2 Elementary Latin 8 s.h.
201-17 Intermediate Latin I-II 6 s.h.
201-22 I and II 6 s.h.
2081 Age of Cicero 3 s.h.
2082 Age of Augustus 3 s.h.
201-20 Elementary Greek Composition 5 s.h.
201-21 Intermediate Greek Composition 3 s.h.

Major in Ancient Civilization
This major is sponsored by the schools of Art and Art History and Religion and the departments of Classics and History. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it provides a sound basis for preparing teachers at the secondary and junior college levels. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major.

Ancient art 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics (either "Classics in English" courses or Latin or Greek language courses) 6 s.h.
Ancient civilization, philosophy, religion, or linguistics 3 s.h.
24194 Seminar in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who satisf a 3.5 grade-point average in their first three years of classics courses, two courses are offered in honors reading, one each semester of the senior year, for 2 semester hours of credit each semester. The readings and discussions are to be supervised by the student and the instructor. During the first semester the student presents an essay every other week, at the end of the second semester the student presents 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 toward the minor:

Greek
1411-14 Second-Year Greek 6 s.h.
All courses numbered 1411-20 do not count toward the minor, because they are not courses in Greek language.

Latin
2016-17 Intermediate Latin I-II 6 s.h.
2051 Age of Cicero 3 s.h.
2052 Age of Augustus 3 s.h.
All courses numbered 2016-21 or higher do not count toward the minor, because they are not courses in Latin language.

Classics
1441-42 Second-Year Greek 6 s.h.
2016-17 Intermediate Latin I-II 6 s.h.
2031 Age of Cicero 3 s.h.
2032 Age of Augustus 3 s.h.
*Those courses or their equivalents are required for the minor in classics, so that students will have had both Greek and Latin.

Ancient Civilization
All courses numbered 1410-100, 20100, or higher, appropriate courses from the schools of Art and Art History and Religion and the departments of History and Philosophy, as selected by the interdepartmental committee on the major in ancient civilization.

4262 Introduction to Ancient Art 3 s.h.
2081 Age of Cicero 3 s.h.
2082 Age of Augustus 3 s.h.

Language for Nonmajors
Students who want to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 141-12 Elementary Greek and 1411-12 Second-Year Greek. Students who want to meet the requirement by studying Latin may elect 2015 Accelerated Latin, and 2016-17 Intermediate Latin I-II.

Graduate Programs
For the general requirements of the Graduate College, including the comprehensive examinations, see the "Graduate College" section of the Catalog. Graduate students in classics may not include in their programs more than 6 semester hours of courses numbered 101-199.

Master of Arts
The department offers the M.A. degree in Latin, Greek, or classics. Candidates must earn a minimum of 30 semester hours of major credit in courses numbered 101 and above. Usually, students in the Latin program who have not had Greek are expected to include at least elementary Greek in their programs.

Doctor of Philosophy
Required Courses
A one-semester course in Greek readings (3 s.h.)
A one-semester course in Latin readings (3 s.h.)
Advanced Greek (out-of-sequence course) (3 s.h.)
Advanced Latin composition (3 s.h.) or equivalent

Any two of the following three courses:
A 3 s.h. course in Indo-European philology
A 3 s.h. course in Greek philology
Any 3 s.h. graduate-level art course

A total of 42 semester hours of specified courses is required. The minimum graduate college requirement is 72 semester hours; the difference of 30 semester hours is to be made up from regular departmental offerings.

Required Ph.D. Examinations
Precomprehensive
French competence
German competence
Latin sign (3 s.h.)
Greek sight (1 s.h.)

One sight examination must be attempted by the end of the first year of graduate study.

Ph.D. Comprehensive (request for the comprehensive examination must be filed at least three weeks before the date of the examination), candidates have the option of taking examinations in any sequence. (Greek, literature (including passages)—4 hours, written; Latin, literature (including passages)—4 hours, written; Ancient History—4 hours, written. Special field or author—3 hours, written; Oral or written examination—1 hour)

Dissertation
Facilities
Extensive collections of classical texts and periodicals in the Main Library and the Art and Art History Library facilitate research in the major areas of Greek and Roman civilization.

The department has a varied collection of slides on classical subjects, and a small library.

Associated with the department, the classical museum contains a valuable collection of coins, vases, and frescoes in buildings from Mycenae, Olympia, and Herculaneum.

The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making those facilities available to its faculty and graduates.

Courses
Greek—for Undergraduates
161 Elementary Greek 3.0 b.
Fundamentals of Ancient Greek and basic concepts of Greek civilization.

162 Elementary Greek 4.0 b.
Intermediate level Greek courses. Instructors of 161, which is prerequisite.

165 New Testament Greek 3.0 b.
Reading knowledge of New Testament Greek; previous knowledge of Greek is not expected, but facility with the other languages is preferred.

166 Modern Greek Language and Culture I 4.0 b.
Greek as a living tongue, with emphasis on the spoken language and culture.

167 Modern Greek Language and Culture II 4.0 b.
Greek as a living tongue, with emphasis on the spoken language and culture.

168 Modern Greek Language and Culture III 4.0 b.
Greek as a living tongue, with emphasis on the spoken language and culture.

169 Modern Greek Language and Culture IV 4.0 b.
Greek as a living tongue, with emphasis on the spoken language and culture.

181 Second-Year Greek 3.0 b.
Reading knowledge of Greek grammar and prose. Prerequisites: 142 or equivalent.

182 First-Year Greek 4.0 b.
Continuation of 181, which is prerequisite.

Greek—for Undergraduates and Graduates
1821 Hesper and Mesol 3.0 b.
For the first-year Greek students, sections from Hesper and Mesol from Plutarch's Lives and Polybius' History, and Herodotus' Histories. Prerequisite: Greek as a living tongue.

1822 Hesper and Mesol 3.0 b.
Continuation of 1821, which is prerequisite.

1840 Grieco and Perili 3.0 b.
For the first-year Greek students, sections leading to the Hesperos and Mesolos course on the war, and to the interrelated subjects of Greek literature and Hellenistic literature. Prerequisite: Greek as a living tongue.

1850 Fifth-Century Athens 3.0 b.
Close examination of the historical context of fifth-century Athens; topics include Thucydides, Sophocles, Pindar, Euripides, Aeschylus, Aristophanes, and the history of Athens in Greece, supplementary readings in Greek.

1872 Elementary Greek Composition 3.0 b.
Review of vocabulary and syntax, and Greek sentence writing, composed of short paragraphs in Greek.

1285 Loaded Readings 3.0 b.

1286 Loaded Readings 3.0 b.

1892 Stored Readings 3.0 b.

1910 Private Assignments 1.0 b.
Instructor will vary. Subject may include ancient historians and ancient institutions.

Greek—for Graduates
1860 Advanced Reading 3.0 b.
Open to advanced graduate students.

1864 Rapid Readings in Greek 3.0 b.

1865 Rapid Readings in Greek 3.0 b.

1866 Greek Palaeography 1.0 b.
Study of Greek papyri, manuscripts, early printed texts, inscriptions, and technical criticism.

1870 Introduction to Ancient Greek Literature 3.0 b.
Same as 1221, 3.0 b.

1877 Homer 3.0 b.

1878 Aeschylus 3.0 b.
Critical reading of selected plays of Aeschylus.

1879 Aristaophanes 3.0 b.
Critical reading of selected plays of Aristophanes.

1876 Plato’s Philosophy 3.0 b.

1880 Plato’s Critique of Empiricism 3.0 b.
Study of Greek conceptions of knowledge and their role in the philosophy of Socrates.

1881 Plato’s Political Philosophy 3.0 b.

1884 Plato’s Ethics 3.0 b.

discussion of Plato’s encyclopedic synthesis of Hellenistic philosophy and the influence of his work.

1882 Thucydides 3.0 b.
Reading and critical study emphasizing Hellenistic political and social thought.

1883 History of Criticism from Plato to 3.0 b.

1884 Sophistic Poetry 3.0 b.

1885 Advanced Greek Composition 3.0 b.

1874 Thucydides 3.0 b.

1875 Homer 3.0 b.

1876 Sophocles 3.0 b.

1877 Greek Novel 3.0 b.
Reading in Thucydides, Xenophon, of Socrates, and Aristotle’s Politics, and Sophocles. Prerequisites: Patrology, and A Programmer’s Guide to the Operating System.

1878 Greek Comedy 3.0 b.
Required of all Ph.D. candidates.

1879 Greek Theater 3.0 b.
For Ph.D. candidates attending the dissertation.

Latin—for Undergraduates
2300 Comparative Education Internship 3.0 b.

2310 Elementary Latin 4.0 b.
Introduction to Latin morphology and syntax. Readings in Latin.

2320 Elementary Latin 4.0 b.
Continuation of 2310, which is prerequisite.

2315 Accelerated Latin 3.0 b.
For students who have had some high school Latin, but not enough to qualify for the course. Prerequisites: None.

2316 Intermediate Latin I 3.0 b.
Prerequisites: 2315 or equivalent.

2317 Intermediate Latin II 3.0 b.
Prerequisites: 2316 or equivalent.

2318 Age of Cicero 3.0 b.
Continuation of Latin and Cicero. Readings in Latin of Cicero and others such as Cicero, Sallust, and Catullus. Supplementary readings in English. Prerequisite: 2316 or equivalent.

2319 Age of Augustus 3.0 b.
Latin in Rome in the late 3rd century of the Common Era. Readings in Latin of Sallust, Tacitus, and Cicero. Supplementary readings in English. Prerequisite: 2316 or equivalent.

Latin—for Undergraduates and Graduates
2317 Accelerated Elementary Latin 4.0 b.
Supplementary readings in Latin of Cicero and others such as Cicero, Sallust, and Catullus. Supplementary readings in English. Prerequisite: 2316 or equivalent.

2318 Plautus and Terence 3.0 b.
Readings in one or two plays of Plautus and one or two plays of Terence. Discussions of social issues implicit in the plays, comments on the evolution of Latin, and historical and technical characteristics of the plays.

2319 Latin Drama 3.0 b.

2320 Latin Poesy 3.0 b.
Reading and criticism of selected Latin poetry from the works of Catullus, Horace, Vergil, and later Latin poets. Prerequisite: 2317 or equivalent.

2321 Vergil’s Aeneid 5.0 b.

2323 Ovid 3.0 b.

2340 Livy 3.0 b.

2371 Elementary Latin Composition 3.0 b.

2372 The Roman Novel 3.0 b.

2375 Medieval Latin 3.0 b.
Reading of Latin of the 12th and 13th centuries. May be repeated for credit. Prerequisite: 2316 or equivalent.

2380 Advanced Undergraduate Latin I 3.0 b.
An introduction to Latin literature from the beginning of the Republic.

2381 Advanced Undergraduate Latin II 3.0 b.
Continuation of 2380, Latin literature to the end of the Empire.

2382 Hesperus and Mesolos 3.0 b.
Reading and discussion on a topic of interest in Greek and Latin composition.

2383 Hesperus and Mesolos 3.0 b.

2383 Private Assignments 1.0 b.
Supervised and read by staff. The advanced student who is not major in this department may be enrolled.

Latin—for Graduates
2384 Advanced Reading 3.0 b.
Open only to classics Ph.D. students.

2385 Comparative Greek and Latin 3.0 b.
Systematic comparison of classical Greek and Latin morphology and syntax. Procedures for translation of Greek into Latin and vice versa. Readings in Greek and Latin. Prerequisites: None. May be taken as needed. Literature approach neglected along lines of modern linguistic research.

2386 Rapid Readings in Latin 3.0 b.

2387 Classical Biography 3.0 b.

2392 Cicero Letters 2.0 b.

2393 Cicero’s Philosophical Works 3.0 b.
Thematic essays and readings in the 90s, from the Era of Cicero, and others such as Cicero, and other important works by Cicero.

2394 Periphrastic Orations and Treatises on Oratory 3.0 b.
Prerequisite: 2391 or equivalent.

2395 Roman Montage 3.0 b.
Prerequisite: 2394 or equivalent.
20:320 Advanced Vergil I
Includes: Vergil: Mythology, Allegory, Epilogues, and Georgics
3.00

20:321 Advanced Vergil II
Includes: Aeneid
3.00

20:240 Latin Language 2
3.00

20:243 Latin
3.00

20:251 Roman Historical Theory
3.00

20:256 Tacitus
Reading of Tacitus' works of Tacitus to examine Roman imperial period.
3.00

20:285 Latin Literature
3.00

20:270 Latin Literature
Readings in Latin prose and poetry written by lawyers and Christian authorities, the period AD 250-510 below the medieval period.
3.00

20:272 Advanced Latin Composition
3.00

20:277 Properties
3.00

20:278 Roman Zephyr
3.00

20:271 Latin Pronoun
3.00

20:261 Latin Sentence
3.00

20:260 Latin Sentence
Course in punctuation.
2.00

20:269 Latin Texts are...
For Ph.D. candidates writing the dissertation.

Classics in English

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

1611 The Classical Views
Readings and discussions of the idea of the ideal, the Homeric world of heroes, and our efforts to understand, worship, and perhaps even benefit from the ancient classical view of the human condition.
3.00

1620 Introduction to Ancient Art
Art and architecture of Ancient Greek culture, from the Greek Mainland and the Aegean Islands to the Roman world.
2.00

1621 Greek Civilization
Life, art, and literature of the Ancient Greeks.
3.00

1630 Women in Antiquity
Examinations toward the status of women in ancient Greek and Roman society, superior women of ancient origin, noble and royal, and their critics.
3.00

1636 Ancient Athletics
Physical culture and competition, and exercise, as tumultuous and even spiritual aspects that were at the heart of the modern and modern world.
3.00

1637 The Place of Gender in Society
Looking at gender in societies, from the ancient world to the modern.
3.00

1638 Cooperation and Intimacy in Greece and Rome
3.00

1639 Spartan Women: Lives of Honor
Influence of Spartan women's treatment of Spartan women, as well as the role of Sparta in the ancient world from the 6th century BC to the 1st century AD.
2.00

1640 Greek Drama: Translations
The works of Aristophanes, Sophocles, Euripides, and Eubules. Their literary significance in 18th-century B.C. Athenian democracy; the role of ancient plays in the political and social life of ancient Athens; the Greek world. (Same as 1619.)
3.00

1648 Greek Prose Literature
Study in English translation of selected prose works, originally in Greek (history, fiction, prescript, and scientific prose), beginning with selected readings and introducing them to students in the context of their place in the ancient world.
3.00

1649 Early Greek Art
Architectural, epigraphic, painting, and minor arts are Rome's influence of Greek art, from the 10th through the 1st centuries BC.
3.00

1661 Classical Greek Art
Architecture of 16th-1600. Same as 1627.
3.00

1662 Classical Mythology
London's and classical myths and legends, for comprehension, understanding, and participation.
3.00

1663 Early Christian and Byzantine Art
Same as 1616. 3-2-3.

1664 Greek and Latin Poetry
Survey of Greek and Latin poetry, from Homer to the Roman poets, focusing on the poetry of Homer's epics.
3.00

1666 Latin Language
Introduction to ancient Latin literature.
3.00

1667 Medieval Latin
Same as 1619.

1668 Introduction to Ancient Civilizations
Survey of ancient civilizations and their cultural and political developments.
3.00

20:30 Roman Civilization
Reading of Roman history, literature, politics, religion, and culture, with emphasis on the development of political and social issues in Roman society from its beginning to the 4th century AD.
3.00

20:31 Greek and Latin for Vocabulary Building
Different vocabulary readings, Greek and Latin roots, prefixes, and suffixes, with emphasis on the identification of vocabulary, and the development of vocabulary in the classical world.
3.00

20:242 Biblical Terminology
Course objective is to develop terminological skills in Greek and Latin, for Biblical cultures, including the Greek and biblical vocabularies and vocabularies in the classical world.
3.00

20:243 Roman Art
Greek and Roman art, sculpture, paintings, and architecture, of the classical world, and their influence on the development of modern art.
3.00

20:105 Roman Romance
Greek and Latin literature, including the development of the Latin language and literature, and the development of the Romance languages.
3.00

20:106 Roman Romance
Greek and Latin literature, including the development of the Latin language and literature, and the development of the Romance languages.
3.00

20:107 Roman Romance
Greek and Latin literature, including the development of the Latin language and literature, and the development of the Romance languages.
3.00

University Undergraduate Advising Center: Juniors and seniors are assigned departmental advisors. Anyone wishing to take courses (other than those fulfilling General Education Requirements) must have a 2.3 cumulative grade point average.

Undergraduate Programs

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

- A total of 36 semester hours in the department, including at least three courses in each of the two undergraduate concentrations.

- A grade of C- or better in each course.

- Majors may specialize in communication, media, society, and culture.

Communication Studies

Chair: Bruce E. Greibak
Professor: Christopher A. Adams, J. Adams, J. T. Rebeiro, John W. Brown, Steven Dube, Bruce E. Greibak, Michael Cofin McGee, Franklin Miller, Donald D. Olita
Professor emeritus: Donald C. Bryant, Hugh V. Condor, E. Clay Rambler, Orville Hallow, Richard H. McCarroll, Hugh F. Schriner, John Wors"
Graduate Programs

Master of Arts

A student can earn a Master of Arts degree in one of the divisions in some combination of divisions.

Departmental requirements for the Master of Arts degree are:

A minimum of 90 semester hours, including 36 hours in Research or its equivalent, and at least two courses numbered 200 or above.

A research thesis, or, for the nonthesis degree, a graduate seminar paper involving significant original research.

Successful completion of a six-hour written examination, the scope of which is determined by the candidate's division and graduate committee.

At least a 3.0 cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is the February 1 preceding, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Education Specialist (for Junior College Teaching)

Departmental requirements for the Education Specialist degree are:

A minimum of 60 semester hours, including 24 hours in THEORETICAL RESEARCH: a course in an approved seminar, and at least 6 semester hours completed in the College of Education graduate program in higher education.

Successful completion of a research report.

A semester internship in an assigned teaching position.

Satisfactory performance on a nine-hour written examination covering areas of learning agreed on by the student and his or her graduate committee.

Successful completion of additional requirements as 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 12 semester hours of dissertation credit.

36:300 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 dissertation examination in the student's major research area.

A substantial scholarly dissertation;

A 3.0 minimum cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is the February 1 preceding, for maximum probability of admission. Admission decisions are based on composite consideration of the applicant's undergraduate achievement; letters of reference; and other evidence of scholarly potential or achievement, such as Graduate Record Examination (GRE) Aptitude Test results and samples of scholarly work.

Facilities

The Communication Studies Building, one of the newest facilities on campus, has been designed specifically to meet both research and technical needs. Included are two television studios, a complete video postproduction facility, a film sound stage, a newsroom area for animation and graphics production, a radio studio, and an advanced 24-track audio 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

36:400 Cooperative Education Internship 1 s.h.

36:110 Environmental Communication Studies 1 s.h.

tudents must be in good academic standing and must have completed 20 hours of academic credit.

36:120 Library Research 1 s.h.

36:195 Honors in Communication Studies 1 s.h.

36:196 Honors in Communication Studies 1 s.h.

36:199 Honors in Communication Studies 1 s.h.

36:100 Problems in Communication Studies 3 s.h.

36:190 Workshop in Teaching Communication and Journalism 1 s.h.

Methods, materials, and techniques of instruction in communication classes, and research-oriented workshops for observation, discussion, and practice in classroom teaching, discipline and behavior, and individual speech, dramatic, and formal debate skills. 32:216.

36:212 Independent Study 1 s.h.

36:160 Introduction to Research 1 s.h.

Methods of selecting and developing research problems, and study and application of representative methods and techniques of research. Bibliographical sources.

35:330 Master's Thesis 3 s.h.

36:60 Ph.D. Dissertation 3 s.h.

Communication Education

Professor in charge: Douglas M. Trank

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

The communication teaching major requires a minimum of 33 semester hours of coursework in Communication Studies. Students should include the following in their program: 49500 Oral Interpretation of Literature; and two courses selected from each of the four departmental undergraduate divisions, with approval of a communication education adviser.

In addition to the secondary education Teacher Education Program foundations courses, students seeking teacher certification in communication and theatre arts also must register for:

75:150 Methods: Communication 3 s.h.

36:100 Methods: Communication 3 s.h.

36:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.

35:337 Seminar: Communication and Student Teaching 1.5 s.h.

To strengthen both their major and their employment opportunities, students are advised to complete a minor certification in...
Minor Certification in Communication Studies

Completion of 23 semester hours of course work in communication and theatre arts is required. These hours must be approved by an advisor.

Courses

34:107 Directing Formatic Productions 3 s.h.
Planning, organizing, and managing formatic programs at the secondary level. Course includes the establishment of formatic format, production schedules for competitive entries, and assists in preparing programs for the secondary school. Same as 21:102.

35:110 Mass-Mode Communication
Teaching, collecting, analyzing, and communicating, preparation and presentation of various patterns in teaching, curriculum properties, objectives, instructional methods and materials, methods of evaluation, student evaluation, and the role of the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:250 Cross-Cultural Communication
3 s.h.
Serves to develop an understanding of the problems involved in teaching communication, public speaking, and reading, and reveals its importance as a professional field of study.

35:250 Decision-Making
3 s.h.
The department and division sponsor an internship program that provides outside work experience, and an active and devoted internship program. Opportunities in a variety of settings, such as advertising, public relations, organizational development, publicity, personnel research, and placement, provide communication majors and others an opportunity to expand research skills, to develop improved listening habits, to work on methods for organizing and amplifying ideas, and to use practical communication skills before audiences outside the classroom. Students may choose to work in debate or in a variety of individual events, in various on-campus programs and off-campus programs. Scholarships are available.

Courses

35:325 Major's Seminar in Speech Communication 3 s.h.

35:335 Controlling in Public
3 s.h.

35:351 Group Communication
3 s.h.
Principles and practical application of group interaction, including the social aspects of group, preparation for group, and group dynamics. Emphasis on the role of the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:360 Intergroup Communication
3 s.h.
Integrates students in basic courses in public speaking, and the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:370 Practices in Debate
3 s.h.
Introduction to the art of forensic debate.

35:380 Communication and Public Affairs
3 s.h.
Practicum in persuasive speaking, based on each of current public issues.

35:390 Before and Professional Speaking
3 s.h.
Techniques and principles of public communication, including the role of the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:390 Elements of Debate
3 s.h.
Introduction to fundamental patterns in debate and debate procedures that the student may teach or direct in intercollegiate debate.

35:390 Organizational Communication
3 s.h.
Introduction to organizational communication, with emphasis on the role of the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:390 Persuasive Communication
3 s.h.
Principles and practical application of persuasion, ability to determine and select persuasive strategies, with emphasis on the role of the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:390 Theory and Practice
3 s.h.
Introduction to organizational communication, with emphasis on the role of the teacher in motivation, teaching methods, performance testing, and the assessment and selection of publications. Consideration of contemporary communication education theory and practice. Same as 72:108.

35:411 Internship
2-3 s.h.
Supervised internship in communication and theatre arts.

35:411 Judicial Procedure
2-3 s.h.
The study of procedures, rules, and methods of judicial proceedings.

35:411 Organizational Communication
2-3 s.h.
The study of procedures, rules, and methods of judicial proceedings.

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Doctor of Philosophy

The program leading to the Ph.D. in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives embedded in this division and to develop research competencies 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 knowledge, which extends beyond their dissertation 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 of each year.

Courses

36:302 Rhetorical Critical Theory 2-3 hr. Survey of approach to rhetorical analysis in communication studies, arts, and society, introduction to the work of rhetorical-critical writing.
36:303 Greek and Roman Public Address 2-4 hr. Historical and critical study of public and written communications from the sixth century B.C. to the third century A.D. Consideration of Sophocles, ancient Athenian rhetoric, Cicero, and early church fathers.
36:304 Applied Rhetoric 2-3 hr. Historical and critical study of American public discourse in terms of its function, form, and content, and comparison with legal, political, and social rhetoric.
36:305 Modern Rhetoric 2-3 hr. History of rhetorical theory from 1750 to 1915. Same as 36:306.
36:306 Rhetoric and Philosophy 2-3 hr. Survey of applications to problems of communication in general and to the study of rhetoric in particular.
36:307 Rhetorical and Communication Theory 2-3 hr. Introduction to the study of the interplay of social, cultural, and political factors on communication and to the methods of communication scholarship. Same as 36:307.

36:308 Research Foun|dations 3 hr. Opportunity to complete individual research projects. Same as 36:308.
36:302 Seminar: Communication Research (Dissertation Research) 2-5 hr. Seminar in research and topics vary. Same as 36:302.
36:303 Seminar: Rhetorical and Communication Theories (Seminar) 2-5 hr. Seminar in research and topics vary. Same as 36:303.
36:304 Seminar: Interpersonal Communication 2-5 hr. Seminar in research and topics vary. Same as 36:304.
36:305 Seminar: Organizational Communication Theory 2-5 hr. Seminar in research and topics vary. Same as 36:305.

Rhetorical Studies

Professor in charge: Michael Colvin McGuire

The program in rhetorical studies leads either to the M.A. or the Ph.D. degree. It is built upon foundation courses in the history of rhetorical practice, 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 on the 100 level, and are listed under "Communication (above); the others begin at the 200 level. Foundation courses in rhetorical theory, designed to survey bodies of academic writing about rhetoric, are offered at the 300 level. Advanced courses in special areas of rhetorical theory are offered at the 400 level. Proseminars (300-level) and seminars (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 to test well in the division and in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges, or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students' needs and career goals. Minimal requirements for the M.A. in rhetorical studies include:

36:300 Introduction to Research: At least 15 semester hours of courses is rhetorical studies, including a seminar (any course numbered 500; 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.
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 on 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 subjects in comparative literature. The MA. may also be awarded after 40 semester hours of graduate study with a grade-point average of 3.25, and following successful completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy
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 devote a portion of their programs to comparative study that brings the several areas into focus. Specific areas and interrelations of these areas are selected by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:

European Renaissance
Romanticism
Structuralism and Poststructuralism
Narrative theory in literature and film
Symbolic poetics and modern 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 also 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.
4841 Major Topics in World Literature I 3 s.h.
4842 Reading and analysis of major literary texts from the Renaissance to the Enlightenment. Requirement: English majors must take a written examination for entrance. Admission by approval for humanities General Education Requirement. Seminar as 4843.
4841 Major Topics in World Literature II 3 s.h.
4842 Reading and analysis of major literary texts from the Enlightenment to 1880 in chronological sequence. Requirement: English majors must take a written examination for entrance. Admission by approval for humanities General Education Requirement. Seminar as 4843.
4850 Non-Western Literary Traditions 3 s.h.
4850 Introduction to the literatures, oral and written, and cultural context, of Africa, Asia, East Asia, the Near East, and South Asia. Readings in literature may be selected from special topics (e.g. women, translation and colonialist texts). Approvals for humanities General Education Requirement. Seminar as 4853.
4850 Introduction to Film Studies 3 s.h.
4851 American Popular Arts 3 s.h.
4850 Introduction to the cultural and aesthetic issues involved in the study of American popular arts, including popular music, folk and rock and roll, film, television, advertising, corporate and corporate culture, and architecture, periods, styles, and their interfaces are explored.
4851 Undergraduate Seminar 3 s.h.
4890 Literature and the City of the Future 3 s.h.
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school and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers the following undergraduate degrees—B.S. in Business Administration, B.S. in Business Administration (B.B.A.) in the College of Business Administration, B.B.A. in the College of Business Administration.

The B.A. and B.B.A. have similar major requirements, but their college requirements differ. The B.B.A. program is designed to provide a background in the business fields of accounting, finance, marketing, business law, and management. The B.S. program is designed to prepare the student for graduate work in economics or related business and technical fields.

Bachelor of Arts
These are the requirements for the B.A. degree with a major in economics:

225:25 Elementary Statistics and Inference
228:17 Quantitative Methods I and
228:18 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 of 6E:103 Microeconomics and 6E:102 Principles of Microeconomics, or senior standing.

Credit need be 6E:190 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 three courses:

220:26-28 Calculus I-II
225:120 Probability and Statistics
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 Analysis.

Credit need be 6E:190 Price, Employment, and Production Theory 6E:185 Statistical Methods I 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:140 and above.

Honors Program
Students working toward the B.A. or B.S. degree with an economics major are encouraged to take part in the Honors Program in Economics. The Honors Program offers the high-achieving student an opportunity to pursue special research interests.

To enter this program, a student must have completed both 6E:103 Microeconomics and 6E:105 Macroeconomics, and must have an overall grade-point average of at least 3.5. Honors students enroll in all honors seminars, write an honors thesis, and take an oral examination on their honors work.

Graduates of honors programs have gone on to graduate study at leading universities in the United States and elsewhere.

Bachelor of Business Administration

The program in 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 macroeconomics and microeconomics.

Credit need be 6E:190 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.B.A. degree.

Courses

Primarily for Undergraduates
Note: The courses listed below are in order by title; they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

6E:100 Economic Awareness Internship 3 s.h.
6E:1 Principles of Microeconomics 3-4 s.h.
6E:2 Principles of Macroeconomics 3-4 s.h.
6E:6 Contemporary Economics Policy 3 s.h.
6E:9 Economics for Undergraduates 3 s.h.
6E:190 Price, Employment, and Production Theory 3-4 s.h.
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Undergraduate Programs

Bachelor of Arts

A Bachelor of Arts degree with a major in English requires between 30 and 35 semester hours of courses offered by the Department of English. Of these, 9 hours come from courses principally with literature written before 1900 and at least 15 hours must be taken in residence at The University of Iowa. In addition, students must complete a minor in another field of study. 

In conference with their academic advisors, students formulate programs of study designed to satisfy the 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 printing 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 literatures, speech, film, and the fine arts. 

Studying English is one of the best ways to improve reading, writing, and speaking skills. Students interested in English majors are encouraged to consider the major in English as a second major, minor, or concentration in another program. 

Studying English in the English Department is one of the best ways to improve reading, writing, and speaking skills. Students interested in English majors are encouraged to consider the major in English as a second major, minor, or concentration in another program. 

General Education Waivers for English Majors

Students who declare English majors are not required to take any of the 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 (8-11 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. The honors student is selected in consultation with the chair of the honors committee. Honors study is planned in consultation with the chair of the honors committee. 

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 this program. These are: WR 151 Creative Writing, WR 152 Fiction Writing, and WR 152 Screenplay Writing. 

Admission to the undergraduate workshops in fiction and poetry (WR 151) 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
sanguet 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 school as well as those completing this program satisfy the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English at the secondary-school level must consult this bulletin for the specific prerequisites for certification for English. This bulletin includes the specific courses in English, excluding freshmen courses in rhetoric, speech, or writing.

The English minor certification program must 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 must include at least 2115 Methods: English in the College of Education's Division of Secondary Education.

While this program meets minimum requirements for certification, the department believes that students desiring 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 embarking on a career in education, journalism, or independent writing or research. The program is designed to meet the needs of students who desire a degree in English and are interested in continuing their work in an area of special interest.

Prospective English teachers should contact the graduate director of English, Dr. John Smith, to arrange an interview. Students who are interested in teaching English at the secondary-school level must consult this bulletin for the specific prerequisites for certification for English. This bulletin includes the specific courses in English, excluding freshmen courses in rhetoric, speech, or writing.

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semester hours of course work, students will be required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an advisor, the student will design an approved program of courses. These plans of study may be highly individual, including courses taken during a preceding semester, but must be coherently organized around the student's interests and objectives as a writer.

Finally, the student will submit to his or her major advisor a thesis, which will be an extended piece of exposition writing; there will be a minor examination covering the project, and the final 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 inand a stimulating environment for students with previous achievement or notable promise in creative writing or both. The requirements, which are flexible, usually include 48 semester hours of graduate credit, earned chiefly in the Writers Workshop, a broad sample of the major categories of poetry or short stories, and a novel, and satisfaction on an examination on modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed to prepare for the teaching, publishing, and professional aspects of college teaching, 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, philology, bibliography, pedagogy, 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-read comprehensive examination in three areas, one of which must be a historical period of English and American literature.
- A dissertation, which may take either a scholarly or a more imaginative writing.

A final examination in defense of the dissertation.

All doctoral candidates are encouraged to gain teaching experience, preferably in the English 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 assistantships 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 February 1 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission

For admission requirements, obtain the handbook entitled "Special Requirements and Information/Graduate Admissions" from the English department graduate office, 320 English-Philology Building.

Writing Programs

For the past 50 years, the University of Iowa has been a national leader in various areas of the teaching of writing. In 1952 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 among its distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teachers-authors, and also brings visiting professors to campus each year for lectures and readings.

The International Writing Program, founded in 1969, brings numbers of prominent foreign writers to campus each year.

The University of Iowa also has a "pilot" program in creative writing, with outcomes among its alumni. The university's creative writing program has developed a range of graduate course work in this area.

Courses

Individual descriptions by many of the English graduate students are included because the content and emphasis of many courses varies considerably from one semester to another. When course descriptions for offerings in a specific semester are available, the English department office will in advance of the beginning of each semester.

General Education Literature

The General Education Requirements in the humanities may be satisfied by taking E.1. The Interpretation of Literature, and two other approved humanities courses. R.G. (or its equivalent by examination or transfer) is acceptable for the other courses (R.G.2 through R.G.15), and therefore must be taken first. The pass/no-pass option is available only for students in the colleges of Nursing and Engineering (with the consent of the student's advisor and the instructor). Anyone wishing to fulfill the
Expository Writing

General Interest

These courses are designed to serve the general interests and needs of undergraduates and graduates in all areas of the University. They offer practice in various elements of composition and various kinds of informative, persuasive, and expressive writing.

EW-10 Expository Writing 3.0 h.
EW-15 Technical and Scientific Writing 3.0 h.
EW-161 Greek and Latin for Vocabulary Building 3.0 h.
EW-162 Grammar and Style 3.0 h.
EW-164 Personal Writing 3.0 h.
EW-165 Writing for Personal and Public Purposes 3.0 h.
EW-169 Advanced Expository Writing 3.0 h.

Special Interest

These courses are designed to serve the special interests and needs of advanced undergraduates and graduates in particular academic and professional areas of the University. They offer practice in specialized forms of writing for specialized purposes and audiences.

EW-111 Writing for the Humanities 3.0 h.
EW-112 Writing for the Sciences 3.0 h.
EW-113 Writing for Business and Industry 3.0 h.
EW-114 Writing for the Social Sciences 3.0 h.
EW-115 Writing for the Arts 3.0 h.
EW-120 Extended Prose/Non-Journalistic Writing 3.0 h.
EW-121 Forms of Writing 3.0 h.
EW-122 Poetry Writing 3.0 h.
EW-123 Free-Lance Writing 3.0 h.
EW-125 Free-Lance Workshop 3.0 h.

EW-126 Introductory Seminar in Creative Writing 3.0 h.
EW-175 Computer Text Editing 1.5 h.
EW-180 Undergraduate Project in Expository Writing 3.0 h.
EW-200 Forms of the Essay 3.0 h.
EW-200 Essay Writing Workshop 3.0 h.
EW-206 Critical Writing 3.0 h.

EW-107 Theory and Practice

These courses are designed to serve the interests and needs of advanced undergraduates and graduates who wish to become not only practitioners, but also critics or teachers of expository writing. They combine theory and analysis of expository writing with practical experimentation in writing.

EW-107 Theory of the Essay 3.0 h.
EW-107 Approaches to the Teaching of High School Writing 3.0 h.
EW-200 Writing Workshop for Teachers 3.0 h.
EW-230 History of Rhetoric 3.0 h.
EW-230 Theory of Style 3.0 h.
EW-237 Beginnings in Rhetoric 3.0 h.
EW-238 Philosophy of Language and the Nature of Writing 3.0 h.
EW-239 Historical Theory: Analysis and Application 3.0 h.
EW-240 Poems of Rhetoric 3.0 h.
EW-241 Approaches to Teaching College Writing 3.0 h.
EW-242 Methods in Teaching Rhetoric 3.0 h.
EW-243 Colloquium in the Teaching of Writing 3.0 h.
EW-244 Art of the Essay 3.0 h.
EW-245 Teaching in a Writing Studio 3.0 h.
EW-472 Seminar: Theory of Writing 3.0 h.
EW-475 Seminar: Problems in Rhetoric 3.0 h.
EW-580 Special Project in Expository Writing 3.0 h.
EW-581 Special Project in Teaching of Writing 3.0 h.

Creative Writing

General Interest

These courses are designed to serve the general interests and needs of undergraduates and graduate students in all areas of the University. They offer practice in various elements and forms of creative writing.

EW-220 Creative Writing 3.0 h.
EW-220 History and Theory of Translation 3.0 h.
EW-240 Fiction Writing 3.0 h.
EW-240 Basic Poetswriting 3.0 h.
EW-241 Advanced Fiction Writing 3.0 h.

Professional Workshop

These courses are designed to serve special needs and interests of undergraduate and graduate students who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Writers Workshop.

EW-107 Playwrights Workshop 3.0 h.
EW-183 Undergraduate Writers Workshop: Fiction 3.0 h.
EW-184 Undergraduate Writers Workshop: Poetry 3.0 h.
EW-200 Fiction Workshop 3.0 h.
EW-222 Poetry Workshop 3.0 h.
EW-242 Translation Workshop 3.0 h.

Exercise Science and Physical Education

Chair: Gary Hansen
Professor: James G. Anderson, Craig M. Arguey, Ronald R. Caudry, Carl V. Geistl, James G. Hay, Jerry A. Maynard

Adjunct professor: Charles M. Tigges

Professor emeritus: James K. Leake

Associate professors: Gary F. Hasen, David K. Huesmall

Assistant professors: Richard M. Rousselle, Donald D. Krueger, Arthur J. Wender

Assistant professor emeritus: Thomas W. Bakewell


Lecturer: Robert K. Martin

Degree offered: M.S., M.A., Ph.D.

The Department of Exercise Science and Physical Education offers Bachelor of Science degree programs in both exercise science and physical education. The graduate programs include the Master of Arts degree without thesis, the Master of Arts degree with thesis, and the Ph.D. degree. Students may select from nine different areas of specialization for the M.A. with thesis and the Ph.D.

Undergraduate Programs

Bachelor of Science degree programs provide preparation for continuing education at the graduate level, career in business, careers related to physical fitness and wellness, and secondary and elementary school teaching and athletic coaching.

Candidates for the B.S. degree in physical education are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 67 and Animal Biology 37-1. The second General Education Requirement should be satisfied by taking 310 Elementary Psychology and, for
students in the teacher education program, 30.5.1 Introduction 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 27.3. The social sciences General Education Requirement should be satisfied by taking 31.3 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 admittance 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 2.35 or higher. Students majoring in 27.35 Exercise Science must complete the following core courses plus all courses in their selected specialization:

TI 413 Introduction to Statistical Methods 3 s.h.
251C Introduction to Computing with FORTRAN 3 s.h.
29.1C Computer Physics 3 s.h.
29.12 College Physics 3 s.h.
73.12 Animal Physiology 5 s.h.
73.10 Human Physiology 4 s.h.
72.140 Human Physiology 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.
27.11 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-specialties in Exercise Science are listed below.

Anatomy Specialization

27.153 Advanced Anatomy and Physiology 2 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.190 Neural Basis of Movement 3 s.h.
27.195 Exercise Science Seminar 2 s.h.
27.212 Cell, Tissue, and Organ Biology 5 s.h.

27.253 Laboratory in Advanced Anatomy 6 s.h.
Preprofessional students should take the following in place of 27.253 Advanced Anatomy Laboratory:
37.135 Comparative Vertebrate Anatomy 4 s.h.
37.150 Introductory Endocrinology 2 s.h.
37.152 Endocrinology Laboratory 2 s.h.

Biomechanics Specialization

57.7 Statics 3 s.h.
27.206 Calculus II 4 s.h.
27.216 Engineering Calculus II 4 s.h.
27.157 The Qualitative Analysis of Human Motion 3 s.h.
27.196 Exercise Science Seminar 2 s.h.
57.10 Dynamics 3 s.h.
57.19 Mechanics of Deformable Bodies 3 s.h.

Exercise Physiology Specialization

4.121 Organic Chemistry I 3 s.h.
4.122 Organic Chemistry II 3 s.h.
27.190 Neural Basis of Movement 5 s.h.
27.195 Exercise Science Seminar 2 s.h.
37.150 Introductory Endocrinology 2 s.h.
37.152 Endocrinology Laboratory 2 s.h.
99.10 Biochemistry 2 s.h.

Neural Control Specialization

27.153 Advanced Anatomy and Physiology 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 Seminar 2 s.h.
37.112 Cell, Tissue, and Organ Biology 5 s.h.
37.180 Introduction to the Neurosciences 3 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 4-1 s.h.
27.11 Orientation to Physical Education 0 s.h.
27.52 First Aid and CPR 3 s.h.
36.40 Anatomy 3 s.h.
27.153 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 5 s.h.
28.120 Administration of Physical Education and Athletics 2 s.h.
27.10 Administration and Curriculum in Physical Education 3 s.h.
26.142 Contemporary Issues in Health Education 3 s.h.
27.108 Teaching Motor Skills 3 s.h.
28.104 Artho-Neuro Dimension of Sport 3 s.h.
27.110 Human Growth and Motor Development 2 s.h.

27.110 Growth and Motor Development 2 s.h.
27.31 Skill Component in Physical Education 2 s.h.
27.32 Skill Component in Physical Education II 2 s.h.

Teaching certification majors who want to qualify for the athletics coaching endorsement also are required to take the following three courses:
27.17 Basic Athletic Training 3 s.h.
27.177 Administration of Athletics 2 s.h.
75.108 Coaching Practice 2 s.h.

Professional education courses required for teacher certification are:
57.72 Methods and Materials 3 s.h.
75.12 Educational Psychology and Measurement 3 s.h.
57.01 Introduction to Teaching English and Speech 2 s.h.
59.02 Introduction to Microcomputing for Teachers 1 s.h.
75.100 Issues in Education 3 s.h.
27.162 Secondary Physical Education 3 s.h.
59.71 Human Relations for the Classroom Teacher 3 s.h.
27.127 Student's Curriculum and Student Teaching 1 s.h.
75.100 Observation and Laboratory Practice in the Secondary School 6 s.h.
27.302 Laboratory in Elementary School 6 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 business, fitness-wellness, or athletic training. Students must complete the following core requirements plus either the additional courses in the emphasis of athletic training. (Athletic training program students are exempt from the core requirements.)
27.31 Skill Component in Physical Education I 2 s.h.
27.32 Skill Component in Physical Education II 2 s.h.

27.31 Skill Component in Physical Education I 2 s.h.
27.32 Skill Component in Physical Education II 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 athletic 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 intramural and intercollegiate athletic teams. The program focuses on problems associated with teaching and coaching in public schools and community colleges.

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

- Human anatomy 2 s.h.
- Human physiology 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 methods in physical education 4 s.h.
Coaching of a sport or event 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 24 hours—12 of which must be in physical education, including 27.201's non-thesis Seminar—and at least one course from each of these three groups:

27.105 Physical Education for Special Students 3 s.h.
or
27.167 Measurement and Evaluation in Physical Education 3 s.h.
or
27.542 Supervision of Physical Education 3 s.h.
or
27.237 Public School Curriculum in Physical Education 2-3 s.h.
or
27.451 The Qualitative Analysis of Human Motion 3 s.h.
or
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 also provides advanced preparation for those who are teaching undergraduates in physical education in four-year colleges, but do not plan to pursue doctorates.

The thesis program for the M.A. degree in physical education is a research-oriented program. Students receive an introduction to the nature and extent of research in physical education, and have an opportunity to specialize in an area of interest.

Because the M.A. degree with thesis is regarded as the first step toward the Ph.D. in one of nine areas of specialization, the undergraduate course work required depends on the area in which the candidate intends to specialize for the Ph.D. Specific courses in mathematics, chemistry, physics, biology, psychology, or physiology are required in some areas of specialization. These courses must be approved by the professor in charge of the emphasis area selected by the candidate, and by the M.A. advisor.

The following courses are required for the M.A. degree with thesis:
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.
27.153 Advanced Anatomy and Kinesiology 2 s.h.
27.157 Biomechanics of Human Motion 4 s.h.
27.105 Adapted Physical Education: Special Topics and Research 3-4 s.h.
27.242 Supervision of Physical Education 3 s.h.
27.597 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 may be used: 3 s.h.
27.143 Introduction to Statistical Methods 3 s.h.
or
60.161 Introduction to Biostatics 3 s.h.
or
22.100 Introduction to Computing with FORTRAN 2 s.h.
or
27.246 Data Processing 3 s.h.
Specialization area:
27.494 Thesis: M.A. Specialization courses approved by the advisor 4-6 s.h.
Electives 4-6 s.h.
Total 30 s.h.

Doctor of Philosophy

Ph.D. candidates in physical education should have a general knowledge of all areas of physical education, a working knowledge of the research techniques applicable to problems in physical education and athletics, and a depth of knowledge in at least one area of specialization in physical education.

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

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, 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 areas are offered by departments other than the Department of Exercise Science and Physical Education. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees for the initial presentation of the proposed problem, and participate in the final examination, in which candidates defend their theses.

In addition to writing a comprehensive examination of this type, 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:
27.405 Thesis: Ph.D. 12 s.h.
or
27.242 Selected Applications of Statistical Techniques 3 s.h.
or
27.243 Intermediate Statistical Methods 4 s.h.
or
63.162 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.
or
27.202 Practicum in College Teaching 3 s.h.
or
27.246 Data Processing 3 s.h.
or
22.100 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
71.139 Exceptional Persons 3 s.h.
27.201 Research 3 s.h.
27.203 Adapted Physical Education: Special Topics and Research 3-4 s.h.
60.108 Human Anatomy 4 s.h.
60.109 Human Anatomy and Neuroanatomy 4 s.h.

Administration and Supervision in Physical Education
27.242 Supervision of Physical Education 3 s.h.
70.201 Foundations of School Administration 4 s.h.
27.203 Research 3 s.h.
or
27.207 Advanced Administration of Physical Education 3 s.h.
or
27.272 Administration of Athletics 3 s.h.

Anatomy
27.253 Laboratory in Advanced Anatomy 6 s.h.
60.216 Neuroanatomy for Graduate, Students 4 s.h.
or
60.217 Developmental Anatomy 2 s.h.
or
37.112 Cytostasis and Tissue Biology 5 s.h.
27.202 Practicum in College Teaching 2-6 s.h.
or
27.153 Advanced Anatomy and Kinesiology 2 s.h.
27.295 Electromyography in Kinesiology and Biomechanics 3 s.h.
or
99.110 Biochemistry 3 s.h.

Biomechanics
57.19 Mechanics of Deformable Bodies 3 s.h.
57.20 Mechanics of Fluids and Transfer Processes 4 s.h.
or
57.21 Principles of Design I 3 s.h.
or
57.153 Intermediate Dynamics 3 s.h.
or
60.108 Human Anatomy 4 s.h.
### Physical Education

**Curriculum in Physical Education**
- TP:301 Design and Organization of Curriculum 3 s.h.
- 72:201 Secondary School Curriculum 3 s.h.
- TP:189 Introduction to Theories of Exercise 3 s.h.

**Exercise Physiology**

1. **Therapeutics**
   - Prerequisites are listed under physical therapy Master of Arts required courses in Entry to Associated Medical Sciences in the University of Medicine section of the Catalog.

2. **Cardiopulmonary Emphasis**
   - 12:221 Exercise Physiology
   - 12:224 Exercise Physiology Laboratory

3. **Musculoskeletal Emphasis**
   - 12:225 Electrophysiology in Kinesiology and Biomechanics

4. **Admission**

   Admission to the Ph.D. program is based on the applicant's grade-point average on work completed for the M.A. or M.S. degree, and on his or her score on the Graduate Record Examination (GRE) Aptitude Test. To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work.

   For admission to the Ph.D. program in therapeutics, the applicant must be a graduate of an approved professional program in physical therapy, and must hold a master's degree, which need not be in physical therapy. Deadlines for admission applications are October 15, March 15, and May 15; notification is made two months after the respective application deadline.

### Facilities

The Recreation Building and Field House, provide excellent facilities for the physical education major. In addition, the undergraduate and graduate instructional programs, and student athletic teams in intersport, recreational activities, and intramural sports, provide excellent facilities for intramural sports, recreational activities, and intramural sports.

Research laboratories for physical education faculty, stress, motor control, and biomechanics are located in the Field House. They provide excellent facilities for instruction and research in both the undergraduate and graduate levels.

### Courses

**Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:112 Cell</td>
<td>Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>12:114 Tissue</td>
<td>and Organ</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>12:205 General</td>
<td>Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>72:152 Endocrinology</td>
<td>Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>72:119 Medical</td>
<td>Pharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>72:302 Physiology</td>
<td>Exercise</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>72:212 Medical</td>
<td>Physiology</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>72:274 Exercise</td>
<td>Physiology Seminar</td>
<td>2 s.h.</td>
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<td>72:130 Metabolism</td>
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<td>72:234 Neuroscience</td>
<td>3 s.h.</td>
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**Measurement and Evaluation**

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<tr>
<th>Course Code</th>
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<tr>
<td>72:284 Intermediate</td>
<td>Statistics</td>
<td>3 s.h.</td>
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<tr>
<td>72:292 Correlation and Regression</td>
<td>3 s.h.</td>
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<tr>
<td>72:335 Introduction to Probability</td>
<td>3 s.h.</td>
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<tr>
<td>72:354 Design of Experiments</td>
<td>4 s.h.</td>
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<tr>
<td>72:355 Construction and Use of Evaluation Instruments</td>
<td>4 s.h.</td>
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<tr>
<td>72:367 Seminar Research in Measurement and Evaluation in Physical Education</td>
<td>3 s.h.</td>
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**Motor Control**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tr>
<td>72:201 Research</td>
<td>5 s.h.</td>
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<tr>
<td>72:190 Research Methodology</td>
<td>3 s.h.</td>
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<tr>
<td>72:295 Electrocardiography</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>72:314 Introduction to Microcomputers</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>72:480 Introduction to Neuroscience</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>101:212 Biomedical Instrumentation</td>
<td>3 s.h.</td>
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</tbody>
</table>

### Three courses must be selected from the following areas: computer science, neuroscience, biomechanics, anatomy, and exercise science.
Bachelors 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 Track

Designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:

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.
9.130 French Conversation: Fourth Level 2 s.h.
9.175 Advanced French Pronunciation 2 s.h.
9.25 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-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 the completion of 35 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 21 semester hours and including at least one course in literature above the 100 level.

Teaching Track

The teaching track requires 35 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.
9.175 Advanced French Pronunciation 2 s.h.
9.130 French Conversation: Third Level 2 s.h.
9.136 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 35 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.
9.126 French Conversation: Third Level 2 s.h.
9.136 French Conversation: Fourth Level 2 s.h.
9.130 Commercial and Technical Translation 3 s.h.
9.175 Translation Project 3 s.h.

Two courses each in French civilization and literature 12 s.h.

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

Minor

The requirements for a minor in French are fifteen semester hours, at least twelve of which must be taken at The University of Iowa, numbered 9.105 or above. Credits numbered in the 180s, 190s, and 100s do not count toward the minor in French.

Bachelor of Arts in Italian

Requirements for the major in Italian include:

18.112 Intermediate Italian 6 s.h.
18.111-112 Advanced Composition and Conversation 7 s.h.
18.110 Introduction to Italian Literature 6 s.h.
18.110-110 Dante and His Times 6 s.h.
18.101 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 honors degree in French, the student must complete:

9.198 Honors Readings 3 s.h.
9.195 Honors Seminar 3 s.h.

An additional course in French literature, language, or civilization, numbered above 190 3 s.h.

Summer Program in France

The department is cooperator of a summer program in France for students enrolled in the Iowa State University. 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 Université Laval. The program is a nonprofit organization whose purpose is to foster comparative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Centre d'études pour non-francophones at the Université Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to enable students 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 Française in the Foreign Language House at South Quadangle Residence Hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing limited opportunities 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 and pass a written and oral examination. The program must include 9.175 Advanced French Pronunciation, 9.209 Advanced Grammar and Lexicography, and at least four graduate-level (120 and above) literature and civilization courses. With permission of the department chair the candidate is to complete 6 or 9 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 36 semester hours of graduate credit, of which at least 18 must be in education or related fields, and at least 12 in graduate (500 level) courses in French literature.

The following courses also are suggested:
9:110 Topics in Applied French
9:115 Textual Analysis
9:206 Advanced Grammar and Lexicology
9:210 Comparative Syntaxes
9:130-134 French Civilization
9:150 Methods: Foreign Language
9:151 Language: Laboratory Equipment Procedures
9:162 Contemporary France
9:175 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 three years of graduate study, of which at least eight can 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 6 semester hours of credit in a related field, such as another language, literature, or philosophy, and must earn at least 18 semester hours of credit in 9:277:377 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 an 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 outside of the M.A. program or another institution are granted conditional status, which is reviewed one semester after admission. This status is reviewed after one semester of residence.

In addition to the Graduate Record Examination (GRE) Aptitude Test scores required by the 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 140-149 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before registering for these courses.

Courses numbered 140-149 are given in English, but students must take the major requirements in French, but may be taken as electives; consultation with the adviser 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 a prerequisite to, a higher-level course that the student has already completed.

Primarily for Undergraduates

9:000 Cooperative Education Internship 6-9 S.
9:120 Elementary French 4-6 S.
For students who have no knowledge of French.
9:220 Elementary French Professor: 5-6 or equivalent.

9:1 French for Teachers I
9:2 French for Teachers II
9:3 French for Teachers III
9:4 French for Teachers IV
9:5 French for Teachers V
9:6 French for Teachers VI
9:7 French for Teachers VII
9:8 French for Teachers VIII
9:9 French for Teachers IX
9:10 French for Teachers X
9:11 French for Teachers XI
9:12 French for Teachers XII
9:13 French for Teachers XIII
9:14 French for Teachers XIV
9:15 French for Teachers XV
9:16 French for Teachers XVI
9:17 French for Teachers XVII
9:18 French for Teachers XVIII
9:19 French for Teachers XIX
9:20 French for Teachers XX
9:21 French for Teachers XXI
9:22 French for Teachers XXII
9:23 French for Teachers XXIII
9:24 French for Teachers XXIV
9:25 French for Teachers XXV
9:26 French for Teachers XXVI
9:27 French for Teachers XXVII
9:28 French for Teachers XXVIII
9:29 French for Teachers XXIX
9:30 French for Teachers XXX
9:31 French for Teachers XXXI
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9:35 French for Teachers XXXV
9:36 French for Teachers XXXVI
9:37 French for Teachers XXXVII
9:38 French for Teachers XXXVIII
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9:131 French for Teachers XXXI
9:132 French for Teachers XXXII
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9:134 French for Teachers XXXIV
9:135 French for Teachers XXXV
9:136 French for Teachers XXXVI
9:137 French for Teachers XXXVII
9:138 French for Teachers XXXVIII
9:139 French for Teachers XXXIX
9:140 French for Teachers XXX
 italian Courses

primarily for undergraduates

1.1.11 Elementary Italian
Pernigotti, 181 and equivalent.
1.1.12 Intermediate Italian
Pernigotti, 182 or equivalent.
1.1.13 Advanced Italian
Pernigotti, 183 or equivalent.
1.1.14 Conversational Italian
Pernigotti, 184 or equivalent.
1.1.15 Introduction to Italian Literature
Pernigotti, 185 or equivalent.
1.1.16 Advanced Composition and
Conversation
Pernigotti, 186 or equivalent.
1.1.17 Advanced Composition and
Conversation
Pernigotti, 186 or equivalent.

for undergraduates and graduates

1.1.18 Literature of the Nineteenth Century
May be given in English for non-majors.
1.1.19 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.20 Conversational Italian
May be given in English for non-majors.
1.1.21 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.22 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.23 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.24 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.25 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.26 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.27 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.28 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.29 Nineteenth Century Italian Grammar
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1.1.30 Nineteenth Century Italian Grammar
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1.1.31 Nineteenth Century Italian Grammar
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1.1.32 Nineteenth Century Italian Grammar
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1.1.33 Nineteenth Century Italian Grammar
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1.1.35 Nineteenth Century Italian Grammar
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1.1.36 Nineteenth Century Italian Grammar
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1.1.46 Nineteenth Century Italian Grammar
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1.1.47 Nineteenth Century Italian Grammar
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1.1.48 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.49 Nineteenth Century Italian Grammar
May be given in English for non-majors.
1.1.50 Nineteenth Century Italian Grammar
May be given in English for non-majors.
Financial Aid

All genetics graduate students receive a financial stipend that is in the range of $12,250 (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, scholarships, 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.

99.150 Biochemistry of International Macromolecules 3 s.h.
99.223 Gene Expression 3 s.h.
2.164 Chromosomes 2 s.h.
2.166 Genetics and Biogenesis of Cell Organelles 3 s.h.
61.170 Microbial Genetics 3 s.h.
61.175 Microbial Genetics Laboratory 2 s.h.
61.179 Comparative Microbial Genetics 3 s.h.
61.270 Topics in Molecular Biology 3 s.h.
37.142 Populations and Evolutionary Genetics 3 s.h.
37.165 Behavioral Genetics 3 s.h.
37.165 Quantitative Genetics 3 s.h.
37.170 Eukaryotic Molecular Biology 3 s.h.
37.171 Molecular Genetics 4 s.h.
37.172 Topics in Molecular Genetics 2 s.h.
37.175 Topics in Evolutionary Genetics 1-2 s.h.
37.176 Topics in Eukaryotic Molecular Biology 2 s.h.
37.215 Genetics Seminar 2 s.h.
Geography

Chair: David R. Reynolds

Professor: Joan W. Parker, James R. Ludberg

Lecturers: David R. Reynolds, Gerald Rubinson

Assistant professor: Cindy F. Baity

Associate professors: Rex D. Vinyard, Axel L. Froehlich, A. Nappapogue, Gordon A. Tyler

Assistant professors: Marc F. Armstrong, Joyce Cooper

Visiting assistant professors: George P. Mace, E. M. Sambatar

Adjunct faculty: Susan Conant, Marie F. Kuhlman, Jordan 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 composite science, 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 which evolve during geographical training.

Studies in geography also provide students with concepts and methods for organizing such spatial units as urban areas, marketing regions, school districts, health service areas, drainage basins, and other areas of environmental concern. Thus, geographers can make substantial contributions toward understanding the behavior of individuals and of 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 interactions of a physical, economic, social, and political phenomena.

College level geography is 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 the transistor interested in elective courses as they relate to a liberal education; for students interested in selecting 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 interdisciplinary 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 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 26 semester hours of geography courses, work at least 15 of which must be at the 300 level. Many students find that they need more than the minimum requirements to master a specific subject.

All geography majors must complete:
44:110 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors

and one of the following courses in statistics:
225:010 Biostatistics
225:012 Introduction to Statistical Methods
225:127 Applied Statistical Methods and Computations

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
225:130 Trigonometry
225:140 Finite Mathematics
225:150 Mathematics for the Biological Sciences

Section B
225:160 Calculus for the Biological Sciences
225:195 Elementary Functions
225:215 Calculus I
225:225 Calculus II
225:345 Engineering Calculus I
225:365 Engineering Calculus II

Bachelor of Science students also must take a computer programming course from one of the following:
210:02 Introduction to Computing with FORTRAN
210:16 Introduction to Programming with Pseudocode

With the consent of the geography faculty, equivalent courses that have objectives similar to these may be accepted in fulfillment of the statistical, mathematical, and computer science requirements.

Recommendations

Students majoring in geography are advised to:

Take both the introductory level courses 44:101 Introduction to Human Geography and 44:3 Introduction to Physical Geography during their freshman or sophomore years.

Take 44:110 Spatial Organization followed by 44:150 Undergraduate Seminar for Geography Majors during their senior year.

Take the statistical, mathematical, and computer programming requirements as early as possible because many advanced level geography courses assume prior knowledge of these subjects.

It is strongly recommended that students take 225:150 Calculus I or its equivalent in fulfillment of the mathematics requirement. Students equipped with these skills will have greater feasibility in further graduate education and will have many opportunities.

Courses for the Nonmajor

Students in the College of Liberal Arts or other schools and colleges of the University may find geography courses meaningful to their own program of study. The beginning level courses 44:1 Introduction to Human Geography, 44:11 Introduction to Social Geography, 44:19 Contemporary Environmental Issues, and 44:3 Introduction to Economic Geography are available for general education credit in social science, and 44:3 Introduction to Physical Geography is available for general education credit in natural science. These courses serve as part of a liberal education.
Other courses also may be attractive as individual electives. These include 4415 Introduction to Physical Geography, 4435 World Cities, 4436 Water in the Biosphere, 4438 Drainage Basin: Form and Process, 4439 Third World Development Support, 4440 The Changing World, and 4491 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 below, 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 basic 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 water resources program of the Department of Geography.

Students concentrating in environmental studies should take 4435 Introduction to Physical Geography and 4491 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
4430 Introductions to Economic Geography
4410 Weather and Climate
4412 Natural Hazards
4412 Environmental Conservation in the United States
4412 Geography of Natural Resources
4412 Environmental Impact Analysis
4412 Water in the Biosphere
4412 Drainage Basin: Form and Process
4412 Water Resource Management
4415 Local Conflict
4415 Field Techniques
4415 Energy in Contemporary Society

Also strongly recommended:

4410 Interdepartmental Studies
4410 Computer Methods in Geographical Analysis
4413 Geographic 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
12.0 Introduction to Oceanography
12.10 Introduction to Remote Sensing
12.60 Hydrogeology and Groundwater Quality
12.11 Geomorphology
12.15 Engineering Geology

Environmental Science
11.22 Ecology and Evolution
18.5 Chemistry and Physics of the Environment
12.32 Environments and Society
2.55 Plants and Human Affairs
2.06 Plant Diversity
2.11 Plant Ecology
2.16 Field Ecology
2.12 Plant-Animal Interactions
3.12 Population and Community Ecology
3.12 Topics in Ecology
3.15 Quantitative Field Ecology
3.15 Quantitative Methods in Biology

Environmental Management
6.01 Principles of Microeconomics
6.03 Principles of Macroeconomics
6.03 Macroeconomics
6.119 Economics of the Government Sector
6.127 Natural Resources in the World Economy: Conflict and Conflict
6.130 Environmental Economics
6.130 Administrative Management
6.131 Individual Behavior in Organizations
6.132 Design and Management of Organizations
12.010 Introduction to Planning and Policy Development
12.014 Introduction to Environmental Planning
52.004 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. Courses 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 programs cover location theories and their applications, applied problems such as zoning 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 effecting change, and the processes through which political 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 in urban and regional studies are advised to select at least 21 semester hours of courses from the following:

4411 Introduction to Human Geography
4430 Introduction to Physical Geography
4411 Introduction to Social Geography
4415 Introduction to Political Geography
4430 Introduction to Economic Geography
4435 World Cities
4430 Environmental Impact Analysis
4410 Location of Services
4431 Medical Geography
4432 Industrial Location
4412 Introduction to Transportation
4414 Methods of Transportation Analysis
4435 Urban Geography
4437 Economic Theory of Location
4439 Urban Policy
4462 Spatial Organization and Political Economy in the Third World
4430 Geography of the Newly Industrializing Countries
4456 Contemporary Europe: Interaction and Change
4467 Patterns of Urbanization and Development in Latin America
4439 Political Economy of Space
4415 Location of Services

Also strongly recommended:

4410 Maps and Mapping
4430 Modeling Methods in Geographical Analysis
4413 Geographic Information Systems

Under the direction of a group of advisers, students should select courses in related disciplines from the following:

113.119 Urban Anthropology
114.187 Afro-American History: 1914-Present
30.120 Fiscal and Governmental Policy
101.161 Introduction to Planning and Policy Development
30.125 Regional Development Policy and Planning
4413 Health Economics
4435 Regional and Urban Economics
4437 Problems in Urban Economics
4434 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
regional) inequalities will find this concentration helpful.
Students concentrating on international development studies should select at least 21 semester hours of courses from the following:

461 Introduction to Human Geography
462 Introduction to Physical Geography
463 Introduction to Sociocultural Geography
464 Introduction to Political Geography
465 Introduction to Economic Geography
466 Introduction to Cultural Geography
467 Third World Development
468 African Development
469 Spatial Organization and Political Economy in the Third World
4610 Geography of the Newly Industrializing Countries
4615 The Changing World
4616 Contemporary Europe: Interaction and Change
4617 Patterns of Urbanization and Development in Latin America
4618 Political Organization of Space
4619 Localized Conflict
4621 Energy in Contemporary Society
Also strongly recommended:
4622 Maps and Mapping
4623 Computer Methods in Geographical Analysis
4624 Geographic Information Systems
Under the direction of an adviser, students should select courses in related disciplines from the following:
3646 Introduction to World Politics
3647 Problem Behavior in Industrial Societies
3656 The Political Economy of the Third World
3660 International Politics
3662 Politics of War and Peace
3663 Political Economy of the Military-Industrial Complex
3669 Economic Development of Underdeveloped Areas
16111 Colonial Latin America
16112 Introduction to Modern Latin America
16122 Modern African History
16136 China: Opium War to Mao

Appropriate foreign language training also might be a part of the student’s degree program.

The department coordinator is the International 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 advisor. Such programs must include at least 21 semester hours of coursework, with at least 15 of these courses at the 100 level. They must include the following courses:
4610 Spatial Organization
4630 Undergraduate Seminar for Geography Majors
and one of the following statistics courses:
222-227 Applied Statistical Methods and Computation
222-235 Biostatistics
222-302 Introduction to Statistical Methods

Minor
A minor in geography is an option available to all students pursuing a B.A. or B.S. in the College of Liberal Arts. To minor in geography, students must complete a minimum of 15 semester hours in geography, at least 12 of which must be taken at The University of Iowa in 100-level courses. Minors should declare one of the department’s three areas of concentration: environmental studies, urban and regional studies, and international development studies and, in consultation with their geography minor advisor, should select courses from those listed in that area (see above).

Honors
The honors major is for students of superior ability who want to pursue studies beyond the typical undergraduate level. To graduate with honors in geography, a student must be admitted to the College of Liberal Arts Honors Program as well as the Honors Program in geography by the first semester of the senior year, and must maintain a grade-point average of 3.2 in all University work and 3.4 in geography.
Prepare and successfully defend an honors thesis; the thesis consists of original work under the direction of a faculty member and is assessed by a three-member faculty committee.

The Cooperative Education Program
The Department of Geography is a participant in the University’s Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Graduate Programs
The goals of the department’s graduate programs are to prepare students to carry on creative and productive research in selected areas of geography involving the use and further elaboration of theory and to prepare students for positions in research, teaching, or some area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates to fill positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are provided for all graduate students to gain practical job experience through service as departmental teaching assistants or graduate instructors.

Master of Arts
The department offers a M.A. subprogram in locational analysis, political geography, regional development, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, health planning, development planning in the Third World, water resources management, and transportation, as well as for those interested in pursuing the Ph.D.
Each subprogram cuts across some of the more 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, mathematics, and research methodology therefore are integral to the M.A. program. Students pursuing the transportation subprogram may take an additional elective course that enhances the concentration certificate 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 200-level courses or above. In addition to fulfilling the course requirements in one of the department’s five subprograms (see below), students must also:
Complete at least one course in another subprogram from the following introductory graduate courses: 44125, 44126, 44131, 44137, 44175, or 44294; Enroll in the department general capstone seminar 44300 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.

Courses, with a grade of "B" or better, at least one 3-semester-hour quantitative methods course from a list of courses approved by the faculty. The M.A. degree can be earned with or without thesis. A minimum of 6 semester hours of credit may be earned for thesis work.

Students selecting the M.A. without thesis must pass a written examination and, in most subprograms, an oral examination. 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

Localistic Analysis
44:134 Methods of Transportation Analysis
44:137 Economic Theory of Location
66:203 Microeconomics I
or
66:205 Microeconomics II
64:217 Urban Economics and Urban Spatial Structure
64:230 Methods of Regional Analysis: Regional Science
64:255 Advanced Location Theory
64:330 Research Seminar: Location Theory

Political Geography
44:175 Locational Conflict
66:203 Microeconomics I
44:210 Philosophy and Epistemology in Geography
44:270 Jurisdictional Organization/Public Service Provision
102:206 Collective Decision Making
102:212 Social Theory, Social Movements, and Public Policy
44:315 Research Seminar: Political Geography

Regional Development
44:120 Economic Geography of Regional Development
44:219 International Location and Regional Development in Latin America
44:234 Agrarian Change and Rural Development in the Third World
44:294 Geographic Perspectives on Development
44:304 Research Seminar: Regional Development

Highly recommended courses
44:285 Methods of Regional Analysis: Science
44:500 Regional Development Theory and Methods
30:350 Political Economy and Public Policy in Developing Countries
Transportation Systems Analysis
4E:103 Statistical Methods in Econometrics
4E:134 Methods of Quantitative Economics
66:303 Microeconomics I
or
66:205 Microeconomics II
44:134 Methods of Transportation Analysis
44:216 Travel Demand Modelling
102:260 Transportation Policy and Planning
102:251 Problems in Transportation and Land Use
or
53:262 Urban Transportation Planning- "Courses satisfy the M.A. and Ph.D. quantitative methods requirement."

Water Resources
44:128 Drainage Basin: Form and Process
44:125 Water in the Biosphere
44:125 Environmental Impact Analysis
Three of the following:
44:220 Flood Studies: Hydrology and Geography
44:225 Water Resources Systems Analysis
44:218 Fluvial Systems in Landscape Ecology
44:227 Water Quality Control Systems
44:220 Water Resources Management
44:229 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 more important than 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 elected 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 44-48 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 fulfill the requirements of other departments and programs, thereby tailoring their programs of study to their individual 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 major active research involvement. The Ph.D. is formally 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 location 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 recommended or required 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) at a level above that required for the B.S. degree and chosen from a list of courses approved by the faculty in the department's Ph.D. program.

Complete the 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 directing the research seminar satisfying the student's M.A. requirement.

Register for the department's colloquium series. 44:50 Research Seminar: Staff, each semester that the student is in residence.

Students can formally be admitted to candidacy for the Ph.D. only after 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 institution on some thesis or research paper completed elsewhere to fulfill the requirement. Students who initially enter the M.A. program with a terminal M.A. as their degree objective and who complete that program can enter the Ph.D. program by fulfilling the research paper requirement.

By the end of the M.A. portion of the program, the student is responsible for obtaining a copy of the program directly from the B.S. or B.A., the student will not receive credit for courses finished in the M.A. program, and the student must submit satisfactory evidence of advanced standing in geography.
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 PhD program. This report is prepared in consultation with the student's PhD advisor and other members of the faculty in the student's home area. The plan of study is amended, as necessary, throughout the remainder of the student's program.

The remainder of the PhD 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's 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 PhD advisor. This written paper must be approved by the student's PhD advisor, consists of a critical review of research in the student's area of concentration. As such, it is a culminating step in a 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 proposal, the student may submit a dissertation proposal for his or her dissertation and approval. The student must then complete a dissertation and a hearing before receiving the PhD degree. Students usually have the option to schedule a dissertation in the Fall, Summer, and Winter quarters. Once the dissertation is complete, the student must undergo an oral examination and a hearing before receiving the PhD degree.

Admission

In addition to the general rules and regulations set forth in the Manual of Rules and Regulations for the Graduate College, the department considers the applicant's undergraduate record, particularly in the major field of study, and the Graduate Record Examination (GRE) Aptitude Test. Three letters of recommendation are required, 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 had attended for the MA degree and graduated with a grade-point average of 2.75 or better in the last 12 semesters hours 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

The number of graduate appointments as teaching or research assistants is available. Awards are based on merit.

Academic Information

The University of Iowa offers a wide variety of courses in geography, including undergraduate and graduate-level courses. Students may take courses in physical geography, human geography, and environmental science. The department also offers an MA degree in geography, as well as a PhD degree in geography.

Facilities

The department houses a laboratory for computer cartography and spatial analysis, equipped with IBM PCs, Flat-Scan and Flat-Scan monitors, an HP 7450 6-page printer, and two remote printers. The PCs and other equipment in the department are connected to the University's SVTC computer communication network, which provides high-speed access to graphics, data management, and analysis software on University IBM, PRIME, and VAX computer systems. Analytical capabilities in the computer cartography laboratory are expected to be enhanced by the acquisition of DEKAS microcomputer-based software for image processing and geographic information handling. Students also have access to a computer laboratory cluster that contains IBM PCs, terminals, a plotter, and a laser printer located in the room as well as the departmental offices. Other facilities in the department currently include a mainframe and a mini-laboratory.

The map collection of the Geography Library contains more than 15,000 maps, including a total of 3,600 atlases and reference works, and almost 100,000 aerial photographs, primarily of Iowa. The library is a repository for maps of the US Army Topographic Command, formerly the Army Map Service. The Geology Library contains approximately 70,000 maps, including both geographic and U.S. Geological Survey topographic maps. The Department of Geography has its own collection of geographic maps, maps of large urban centers, and special publications for use by students in laboratory exercises.

Courses

Most courses open to undergraduate students may be taken in any order or simultaneously. All courses below the 100 level are open to freshmen; 441, 441L, and 443 are open to special students for General Education Requirement in social sciences; and 445 satisfies the General Education Requirement in natural science.

Primarily for Undergraduates

450 Cooperative Cartographic Training Agreement

461 Introduction to Human Geography

465 Historical Geography

466 Cultural Geography

467 Historical Geography

468 Introduction to Physical Geography

469 Location and Climate

470 For Undergraduates and Graduates

481 Weather Map and Climate

485 Map and Map Reading

486 Computer Methods in Geographical Analysis

487 Spatial Organization

489 Geographical Information System
Geology

Claude Gilbert Klaipé
Associate professors: Robert B. Brosius, C. Thomas Foster, Jr.
Assistant professors: Eric H. Christerlson, Ann R. Frazier
Adjunct associate professors: R. Sanders, Richard R. Whitefield
Research associates: Halsey Goldsmith
Degree offered: B.A., B.S., M.S., Ph.D.

Geology is the basic study and practical application of scientific disciplines related to understanding the earth. Geological concern include the earth's origins, its present appearance and character internally and at the surface, its alteration with time, location of economic resources, and how man is changing the earth for future generations. The Department of Geology has the customary subfields—mineralogy, petrology, stratigraphy, structural geology, paleontology, and economic geology. Geomorphology, general geology, environmental geology—as well as applied geophysics, geochronology, paleontology, and remote sensing.

Career opportunities are available to professional geologists in industry (especially related to the search for petroleum and minerals), teaching, urban planning, state and federal geological surveys, and government, research, and research organizations. The master's degree is regarded by most hiring agencies as the working degree in geology. However, an undergraduate degree is highly satisfactory in certain teaching, federal, and industrial situations.

Many of The University of Iowa's geology graduates find employment with the petroleum industry in exploration geology and petroleum engineers continue in graduate school or take jobs with geophysical firms. Some intend to enter law, business, or other fields of public service. Engineering, environmental studies, engineering, archæology, science education, or...
The program puts 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 (fossil, vertebrate, invertebrate, patrology) a terminal link to the Wing Computing Center, the Iowa Geologic Survey building, an art research building, and research equipment for tasks such as microanalysis, petrology, sedimentology, and economic. Remote sensing and exploration geophysics are also included.

Geology majors receive at least an academic year's work in allied scientific areas—physics, chemistry, biology, and mathematics—enough to prepare for a course in each major area of geology.

Each year more than 500 students enroll in 12-23 Earth History and Resources and 12-24 Introduction to Environmental Geology, a two-semester, lecture-laboratory course designed to fulfill the College of Liberal Arts General Education Requirement in natural science studies.

For nonmajors, the department offers a lecture sequence featuring a survey of geology and several advanced courses with two prerequisites—paleontology, geology of Iowa, energy in contemporary society, a planet in crisis, remote sensing, geophysics, and oceanography.

Undergraduate Programs

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they study both physical (sedimentary, igneous, metamorphic) and applied (structural, economic) geology. A student who intends to seek admission to graduate or professional schools must have a B average in the junior year and at least one grade of A in the senior year.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry. Required courses in this program:

- 125 Introduction to Geology: 4 s.h.
- 126 Evolution of the Earth: 4 s.h.
- 124 Mineralogy: 4 s.h.
- 125/126 Elementary Petrology: 4 s.h.
- 125 Elementary Geology: 4 s.h.
- 123 Geologic Field Methods: 2 s.h.
- 121/122 Field Course: 6 s.h.
- 121/122 Principles of Paleontology: 3 s.h.

At least two elective geology courses: 6 s.h.

Total: At least 38 s.h.

The geology major requires at least 10 semester hours of college mathematics, including 124/126 Calculus II or 224/226 Engineering Calculus II. Computer science or statistics courses may be counted toward the 10-semester-hour requirement. Additional mathematics courses are strongly recommended.

Eight semester hours of physics, 8 semester hours of chemistry, and a course with a lab in a biological science are also required.

Bachelor of Arts

The Bachelor of Arts program is designed to provide a general background in geology—with a broader choice of electives—than that for the B.S. program for students who are not planning to become professional geologists. With appropriate course work in education, the B.A. program provides a base for high school or community college teaching. A general background in geology and allied fields is also applicable in areas such as conservation and environmental problems. Course requirements for the B.A. in geology:

- 125 Introduction to Geology: 4 s.h.
- 126 Evolution of the Earth: 4 s.h.
- 124 Mineralogy: 4 s.h.
- 125 Elementary Petrology: 4 s.h.
- 121/122 Principles of Paleontology: 3 s.h.
- 121/122 Field Course (two sections): 4 s.h.
- Geologic electives: 12 s.h.

Total: 38 s.h.

The student may substitute 123/23 Earth History and Resources and 12-24 Introduction to Environmental Geology for 125 Introduction to Geology, but 12-25 is preferred for the B.A.

The B.A. in geology requires at least 38 semester hours of college-level mathematics, which may include computer science or statistics. Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student's objectives are recommended.

Joint Programs

Joint programs can be arranged, typically with chemistry, physics, biology, and anthropology.

Original Research

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

Honors

A degree "with honors" in geology is offered. Students in the honors program can elect a senior thesis.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study.

All beginning graduate students in geology must take 12-107 Geologic Orientation. All graduate students in geology must perform teaching, research, or related service as a part of the degree program.

Prospective graduate students in geology should consult the "Bibliography and Publications" in the "Graduate College" section of the Catalog for general admission and graduate study requirements.

Master of Science

The M.S. degree program is designed to complete the student's broad, fundamental background in geology and the specialized fields. They prepare the student for a professional career in geology, for more advanced and specialized studies—although in certain situations and with formal approval the student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a graduate adviser. Before the end of the second semester, the student has selected a research area and related thesis committee. The student's adviser approves the thesis advisor and two additional faculty members, who form the student's thesis committee. The student is responsible for getting the thesis advisor's approval for a suitable program of course work, and for satisfactory development of research plans as outlined in the thesis proposal that is submitted for experimental approval.

The degree requires at least 30 semester hours of credit in graduate-level course work, including not more than 8 semester hours of thesis and research credit, and at least 24 semester hours in residence at The University of Iowa.

Master of Science candidates complete at least one of the Ph.D. language and tool requirements as part of their master's program. Course work to satisfy these requirements does not count toward the semester-hour requirements for the degree.

To qualify for admission to the final master's examination, the candidate must have at least a 3.0 grade-point average on graduate courses that he or she is taking toward the 30-semester-hour minimum requirement for the degree. Additionally, a candidate must successfully complete a comprehensive written examination.
the grade-point average on all graduate geology courses should be at least 3.0. Not more than 8 semester hours of thesis and research may be counted toward the 36-semester-hour minimum required for the degree program.

Master of Science with Thesis

Students are encouraged to select thesis topics involving a variety of geological subspecialties and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

Master of Science without Thesis

The department encourages few students to pursue the M.S. without thesis. The program requires that applicants have approximately three months' experience working under the supervision of a professional geologist, or equivalent experience in some phase of geologic activity. The students 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 36 semester hours of graduate course work, of which at least 8 semester hours must be earned in other departments of the University.

The faculty also may require that students submit a formal geologic report dealing with an appropriate subject or project. Credit may be granted for this report.

The formal examination covers 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, the M.A.T. degree requires at least 20 semester hours of graduate study in professional education and at least 18 semester hours of graduate 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.

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 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
- Determinative mineralogy
- Crystal chemical and mineral chemistry
- Igneous and metamorphic petrology
- Igneous petrology
- Metamorphic petrology
- Aquatic geochemistry and thermodynamics
- Structural geology
- Geotechnics
- Structural analysis
- Remote sensing
- Geophysics
- Exploration geophysics
- Solid-earth geophysics
- Rock properties
- Stratigraphy
- Physical stratigraphy
- Biostratigraphy
- Depositional environments
- Sedimentary petrology
- Sedimentation
- Sandstone and carbonate petrology
- Physical stratigraphy
- Pleistocene studies
- Pleistocene paleontology
- Vertebrate paleontology
- Quaternary paleontology
- Paleontology
- Palynology
- Paleozoology
- Eocenology
- General geomorphology
- Glacial and Pleistocene
- Remote sensing
- Environmental geology
- Hydrogeology
- Remote sensing
- Engineering geology
- Other minor subjects
- Botany
- Biology
- Chemistry
- Physics
- Materials engineering
- Geography
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
13.1 Elementary German I 4 s.h.
13.12 Elementary German II 4 s.h.
13.21 Intermediate German I 3 s.h.
13.22 Intermediate German II 3 s.h.

The basic program also may be satisfied by various combinations of courses from the following: 13.13, 13.14, 13.25, 13.26, and 13.27. See the German department undergraduate advisor for details.

Humanities Track

Third Year
13.103 Introduction to Modern German Literature I 3 s.h.
13.102 Introduction to Modern German Literature II 3 s.h.
13.103 Composition and Conversation I 3 s.h.
13.104 Composition and Conversation II 3 s.h.

Fourth Year
13.105 German Cultural History 3 s.h.
13.111 Survey of German Literature 3 s.h.
13.112 Survey of German Literature 3 s.h.
13.116 Advanced Composition and Conversation 3 s.h.

Applied German Track

Third Year
13.103 Composition and Conversation I 3 s.h.
13.104 Composition and Conversation II 3 s.h.
13.106 Principles and Techniques of Translation 3 s.h.
13.107 Translation: Prose and Poetry 2.4 s.h.
13.114 Business German 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

Fourth Year
13.116 Advanced Composition and Conversation 3 s.h.
13.114 Business German 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

The student in Applied German must complete at least one additional German literature or culture course at the 100 level or above.

German majors, graduate as well as undergraduate, are urged to supplement their degree programs with relevant courses in German history, philosophy, business, etc.

A student with native proficiency in German should declare German only as a second major, and must complete a full first major in a subject in which he or she has no such obvious advantage over his or her peers.

Minor
A minor in German requires 15 semester hours of course work in college-level German. Twelve of these semester hours must be in advanced courses (13.100 and above) at The University of Iowa. All course numbers 100 and above must count toward the minor except 13.118, 13.123, 13.124, 13.137, 13.138, 13.152, 13.153, 13.158, and 13.162.

Certification for Teaching Minor
In addition to the basic program, requirements for the first and second year, a student must take the following courses or their equivalents for certification of the teaching minor in German:
13.101 Introduction to Modern German Literature I 3 s.h.
13.102 Introduction to Modern German Literature II 3 s.h.
13.103 Composition and Conversation I 3 s.h.
13.104 Composition and Conversation II 3 s.h.
13.116 Advanced Composition and Conversation 3 s.h.

Honors
This program is open to junior and senior students who are majoring in German and have grade-point averages of at least 3.2 overall and 3.5 in German. During the junior and senior years, the honors student in German is expected to engage in extra readings and discussions, and to write a term paper (if feasible) for each of the courses in which he or she is enrolled. A senior essay, written under the supervision of a faculty member, is a comprehensive oral examination complete the program.

Special Facilities
Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. Students also may benefit from the Computer-Assisted Instruction program.
An extensive collection of works and periodicals in the University Libraries facilitates research in all major areas of German literature and Germanic linguistics at all levels of study.

The Foreign Language House in South Quadrangle Residence Hall is available to undergraduate and graduate students as an on-campus housing option.

Foreign Study
The Department of German participates in the 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. Radegund, 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 coursework 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 semester. Applicants should have a good basic knowledge of German—normally two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.
Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.
For further information, write to the Department of German.

Graduate Programs
Master of Arts (Thesis)
Graduate students of German who demonstrate an interest in and potential for productive scholarship and who plan to complete a doctorate study should select the master's degree program with theses. The program requires a minimum of 30 semester hours, or equivalent, of graduate-level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog).
If the student has not completed major coursework or equivalents in the department's undergraduate program, he or she will include these along with the course work required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such work.
With the graduate advisor's approval, some of the 30 semester hours required for the degree may be taken outside the department in such mixed subjects as philosophy, history, linguistics, or other languages.
Normally, the student may receive two semester hours of credit for satisfactory completion of the thesis. The thesis topic may be either linguistic or literary, and is subject to approval by the faculty.
Global Studies

Chair: James McCarley (Religion) Committee members: Steve Alten (Office of International Education and Services), Robert Fitch (Secondary Education), Barbara Hill (Political Science), William Klink (Physics and Astronomy), Howard Luster (Physics and Astronomy), Scott M. McDonald (Foundation, Postsecondary and Continuing Education), Gerald Nandy (Economics), David Schoenbrod (History), Renu Wadhwani (Law)

The Global Studies Program at The University of Iowa is designed to provide undergraduate students with a multidisciplinary study of major contemporary, interconnected global problems: war, peace, and security; economic development and poverty; the environment and natural resources; and cross-cultural understanding. Students interested in complementing their study with emphasis on these issues may work toward a certificate or a minor in global studies or, if they are eligible, they may pursue as honors interdisciplinary major in global studies.

The Global Studies Program provides suitable background for a variety of careers. Depending on the choices made for shaping the program, it can provide a broad, integrated base for more specialized or advanced work in a variety of academic disciplines, or for the study of law. It also provides suitable background for work in international business and with international and governmental agencies.

Programs

Certificate Program in Global Studies

The Certificate Program in Global Studies is designed to provide an international and global orientation for students in a variety of majors, as well as for those working toward the Bachelor of General Studies (B.G.S.) degree. Students in such diverse fields as engineering, business, anthropology, journalism, and others,
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.

4611 (Contemporary Environmental) Issues or 44124 Introduction to Global Environment

Cross Cultural Understanding

Global issues will require for their analysis and solution persons educated to understand those perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating about and arriving at possible solutions to global problems; and that without careful examination, it is risky to accept as absolutes the perceptions, values, and beliefs of any one society or culture.

The goals of this program component are to highlight cross-cultural differences personified 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.

1133 Introduction to the Study of Culture and Society or 11110 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 major is a broadly conceived program that provides a good deal of flexibility, yet at the same time has a quite distinctive 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. Primarily 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.A. degree of the College of Liberal Arts and it commonly requires more work.

Core

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

471 Global Interdependence and Human Survival: An Introduction to Global Studies or 47198 Global Studies Seminar

Four courses chosen from the following:

A course in international economics, e.g., 62167 International Economic Problems or 67125 International Economics

A course in the history of Europe during the Imperial Era, e.g., 166134 Nineteenth Century Europe or 166151 Modern Britain 1760-1867

A course on the history of the United States as a world power, e.g., 154152 The U.S. in World Affairs 1866-1975

3916 Introduction to World Politics or 39169 International Politics

19157 Third World Development Support
Courses

47.1 Interdependence and Human Survival

3 s.h.

Introduction to problems of the global studies program: basic information, methods of understanding, and the use of global studies, emphasizing current and recent developments of specific interrelated social and political issues. Offered fall semesters.

37.1 Prehistory and Africa

3 s.h.

Interdisciplinarily survey of the political, economic, and cultural development of Africa prior to modern times. Offered fall semesters.

47.16 Prehistory, Human and Global

3 s.h.

Introduction to the political, economic, and cultural development of Africa prior to modern times. Offered fall semesters.

47.18 Comparative European and Global Studies

2 s.h.

Comparative European and global studies, examining the parallel development of societies and cultures.

47.19 African and Global Studies

2 s.h.

Comparative African and global studies, examining the parallel development of societies and cultures.

37.16 Global Studies Seminar

3 s.h.

Interdisciplinary seminar on the major political, economic, and cultural developments of the global community. May be repeated with consent of instructor.

37.18 Contemporary European and Global Studies

2 s.h.

Comparative European and global studies, examining the parallel development of societies and cultures.

Greek

See "Classics."

History

Chair: Malcolm J. Rothlugh

Professor: Lawrence E. Gould, Ralph E. Geary, Johannes A. Gustafson, Chad E. H, de Blake, R. Harder, Henry C. Hine, Sydney V. James, Linda K. Keeler, Donald McKee, Catherine Pfeiffer, Malcolm J. Rothlugh, David Schuman, Alan B. Spence, Donald Baxter.

Professor emeritus: William O. Ainslie, Stanley M. Gelber, Mary H. Green, John H. McRee.

Associate professors: R. David Arke, Dwight Baldwin, Jeffrey L. Cox, Paul Greenough, Jack Haverly, Allan Vogel, Stephen D. Byrn


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

The purpose of the Department of History is to increase knowledge of human experience and provide students with opportunities to gain information about and learn methods for understanding the world in light of its past. In addition to offering these essential elements of liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a period or aspect of history as background for their own specialized interests in other fields, and participates in several interdisciplinary programs, such as American civilization, African-American World studies, Asian studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history work in a variety of positions in business, public service, or journalism. Many plan further training in history, law, religion, literature, and information science, or social work.

A major in history includes work in other fields that will illuminate and expand the meaning of history courses as well as introduce the undergraduate to other bodies of information and approaches to understanding the ways societies and cultures work. For example, students majoring in history are encouraged to fill one of the following requirements in a foreign language by selecting a language that fits their history interests.

The general major is for students with a general interest in history. The program requirements are:

A minimum of 24 semester hours in courses offered by the Department of History numbered 2351 or higher, of which at least 12 semester hours must be in non-U.S. history courses; this limitation is imposed to assure acquaintance with the history of at least one society besides one's own.

Three semester hours in 2351 Colloquium for History Majors; a colloquium consists of a small number of students collectively studying problems in ways that give training and experience in group discussion, analysis, and criticism; it is best taken after the student has finished a number of other history courses.

The 24 semester hours of history required for the major, 12 (excluding the 3 semester hours of colloquium) must be taken in residence at The University of Iowa.

A minimum of 12 to 18 semester hours of course work in related areas, such as archeology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology, or a second major in one of these areas; courses
talents to satisfy General Education Requirements will not be counted toward the related area requirement.

Student learning in history may satisfy 1 semester hour of the General Education Requirement in historical perspectives. They may not receive credit toward this requirement by taking any of the following courses taught by members of the history faculty: 16:93:15, 16:93:17, or 16:93:19. Such courses may be included in the 24 semester hours of history required for the general major in history.

Teacher Certification

Students majoring in history who wish to qualify for a teaching certificate must choose an area of concentration in history and meet these requirements:

American History Concentration

Courses in U.S. History (including 16:51) for History Majors

- 30 s.h.
- Courses in related areas
- 24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from among the following five: economics, geography, political science, social science.

Political Science Concentration

Courses in non-U.S. History (including 16:51) for 30 s.h. History Majors and one of 16:91, 16:97, or 16:119

- 24 s.h.
- Courses in related areas

Students must select 12 semester hours of course work in each of two areas chosen from the following five: economics, geography, political science, sociology.

Combined History Concentration

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 such course may be applied to any one related area.

World History Concentration

Courses in non-U.S. History (including 16:51) for 30 s.h. History Majors, and one of 16:91, 16:97, or 16:119

- 24 s.h.
- Courses in related areas

Students must select 12 semester hours of course work in each of two related areas chosen from the following five: economics, geography, political science, sociology.

Graduate Programs

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, literary work, or historical site preparation and display. Some students enter the graduate program in degrees to meet both law and history (see the "College of Law" section of the Catalog). Qualified graduate students are invited to apply for fellowships and assistantships, and such inquiries should be directed 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 3 hours in history, written and approved by the history department, including at least two seminars or one seminar and one readings course. This seminar must be taken within the first two semesters of residence. Twelve semester hours must be in the area of the student's essay topic, and at least six semester hours must be in a seminar or seminar in history, each of which is at least 4 hours in length. The essay usually begins as a thesis proposal for the seminar to the major division and is completed under the supervision, under the guidance of the supervision, when the student is enrolled in 16:929 Individual Study Graduate. The transfer credit should be assigned a course of articles in the major, just as in the Ph.D. dissertation later, and the transfer credit from a full-length seminar or monograph.

The alternate plan for the M.A. is designed for students who do not intend to pursue the doctorate in history. The basic course requirements are the same as those for the Ph.D.-track M.A. They are: 30 semester hours overall; 24 in history; 12 in one major division, including a minimum of 6 credits in both reading or seminar course in history. The student must be at least 0 semester hours in each of the other two divisions in history, or 6 semester hours in a related semester hour must be at least one reading or seminar course in history. After completing these requirements, or during the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive examination in the major division.

Doctor of Philosophy

Students who earn the M.A. with research essay are admitted to the Ph.D. program on the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the Graduate College's 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 research paper, to the M.A. chair. They must take a research seminar during their last year of undergraduate study. The candidate must earn at least 24 semester hours of credit, including credit...
16.14 Problems in Human History: Peru
Copasurina and Vicuñas 3 a.h.

16.15 Problems in Human History: The
Yasawa War in Historical Perspective 3 a.h.

16.16 Problems in Human History: Colonial
Europe in America, 1492-1800 3 a.h.

16.17 Problems in Human History: Middle
Ages and Scholasticism 3 a.h.

16.18 Problems in Human History: The
Cold War 3 a.h.

16.19 Courses in History Topics 3 a.h.

16.20 Agricultural and Nomadic Society 3 a.h.

16.21 Historical Background of
Contemporary Issues 3 a.h.

16.22 Historical Background of
Contemporary Issues 3 a.h.

16.23 Historical Background of
Contemporary Issues 3 a.h.

16.24 Historical Background of
Contemporary Issues 3 a.h.

16.25 History of Middle Eastern Society 3 a.h.

16.26 History of African Society 3 a.h.

16.27 History of Asian Society 3 a.h.

16.28 History of Latin American Society 3 a.h.

16.29 History of Islamic Society 3 a.h.

16.30 History of Russian Society 3 a.h.

16.31 History of American Society 3 a.h.

16.32 History of Indian Society 3 a.h.

16.33 History of Chinese Society 3 a.h.

16.34 History of Japanese Society 3 a.h.

16.35 History of Scandinavian Society 3 a.h.

16.36 History of German Society 3 a.h.

16.37 History of French Society 3 a.h.

16.38 History of English Society 3 a.h.

16.39 History of Italian Society 3 a.h.

16.40 History of Russian Society 3 a.h.

16.41 History of American Society 3 a.h.

16.42 History of Latin American Society 3 a.h.
Home Economics

The department prepares professional home economists to work with individuals, families, businesses, agencies, and organizations that provide goods, services, and programs that enhance the quality of life. The departmental courses also contribute 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 and in private, community, and government agencies that provide services such as teaching, designing, merchandising, interior design, retail art, consumer 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:

1.53 Human Development and the Family 3 s.h.
1.54 Food, Nutrition, and You 3 s.h.
1.55 Design and the Environment 3 s.h.
1.56 Textiles for Consumers 3 s.h.
1.58 Management of Family Resources 3 s.h.
1.59 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 I: Apparel and Textile Merchandising

Students interested in apparel and textile merchandising opt to 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:

1.73 Introductory Clothing Construction 3 s.h.
1.74 Apparel, Fashion, and Selection 3 s.h.
1.75 Fitting Problems and Flat Pattern Design 3 s.h.
1.77 Fashion Merchandising 3 s.h.
1.782 Textile Technology and Analysis 3 s.h.
1.785 Textile and Apparel Economics 3 s.h.
Option 2: Design and Fiber Arts

Students interested in developing an understanding and appreciation of concepts unique to design by drawing upon the humanities, the arts, and the sciences should select this option. Professional goals focusing on residential and contract interior design, space planning, design consulting, merchandising, fashion design, lamps and sunset furniture art, and historical restoration and preservation are available. The following courses in addition to the home economics core listed previously:

1752 Presentation Graphics 4 s.h.
1754 Interior Design: Principles and Practices I 3 s.h.
1755 Survey of Historic Interiors 3 s.h.
1756 Survey of Modern Interiors 3 s.h.
1758 Housing and Planning 3 s.h.
1758 Housing Planning and Structural Aspects 3 s.h.
Two of the following:
181 Understanding the Visual Arts 3 s.h.
182 Western Art and Culture before 1400 3 s.h.
184 Western Art and Culture after 1400 3 s.h.
186 Introduction to Asian Art 3 s.h.
188 Elements of Art 3 s.h.
189 Elements of Art 3 s.h.
An approved two-dimensional studio art course 3 s.h.
A 4 Basic Design 3 s.h.
An approved three-dimensional studio art course 3 s.h.
421 Principles of Microeconomics 3 s.h.
422 Principles of Macroeconomics 3 s.h.
One of the following, depending on professional goals:
1753 Interior Design: Principles and Practices II 3 s.h.
1752 Textile Arts 3 s.h.

Option 3: Distinction

Students interested in qualifying for a postbaccalaureate dietetic internship must complete the following approved American Dietetic Association FPD generalist dietetic option in addition to the home economics core listed previously:

1752 Presentation Graphics 4 s.h.
1754 Interior Design: Principles and Practices I 3 s.h.
1755 Survey of Historic Interiors 3 s.h.
1756 Survey of Modern Interiors 3 s.h.
1758 Housing and Planning 3 s.h.
1758 Housing Planning and Structural Aspects 3 s.h.
Two of the following:
181 Understanding the Visual Arts 3 s.h.
182 Western Art and Culture before 1400 3 s.h.
184 Western Art and Culture after 1400 3 s.h.
186 Introduction to Asian Art 3 s.h.
188 Elements of Art 3 s.h.
189 Elements of Art 3 s.h.
An approved two-dimensional studio art course 3 s.h.
A 4 Basic Design 3 s.h.
An approved three-dimensional studio art course 3 s.h.
421 Principles of Microeconomics 3 s.h.
422 Principles of Macroeconomics 3 s.h.
One of the following, depending on professional goals:
1753 Interior Design: Principles and Practices II 3 s.h.
1752 Textile Arts 3 s.h.
17.137 Food Service Systems
  Administration  3 s.h.
17.144 Human Nutrition  3 s.h.
17.146 Nutrition Laboratory  4 s.h.
17.147 Diet Therapy  5 s.h.
4.105 Analytical Chemistry I-III  5 s.h.
4.16 Principles of Chemistry Laboratory I  2 s.h.
4.21 Organic Chemistry I  3 s.h.
9.910 Biochemistry  3 s.h.
6.1 Principles of Microeconomics  3-4 s.h.
6.10 Administrative Management  3 s.h.
76.131 Educational Psychology  3 s.h.
76.107 (76.108) Psychological Bases of Instructional Design  3 s.h.
341 Introduction to Sociology: Principles of Sociology  3 s.h.
341.1 Elementary Psychology  3-4 s.h.
61.157 General Microbiology  3 s.h.
72.130 Human Physiology  4 s.h.
113.3 Introduction to the Study of Culture and Society  4 s.h.

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

This option follows minimum academic requirements of the American Dietetic Association. Prior to Fall 1981, all students applying for a postbaccalaureate internship should have their programs conceptually screened during the first semester of the senior year.

Option 4: Family Studies

Students who want specialized training in individual and family life 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.
17.106 Basic Aspects of Aging  3 s.h.
17.112 Personal Financial Management  3 s.h.
17.113 Marriage and Family Interaction  3 s.h.
17.114 Parent-Child Relationships  3 s.h.
17.122 Materials and Methods in Family Life Education  5 s.h.
17.900 Cooperative Education  0-12 s.h.
17.115 Home Economics Internship  1-4 s.h.
3.11 Elementary Psychology  3-4 s.h.

4.16 Introduction to Sociology: Principles of Sociology  3 s.h.
341.59 The Family in Various Societies  3 s.h.
4.16 The American Family  3 s.h.
6.3 Principles of Microeconomics  3-4 s.h.
6.3 Principles of Macroeconomics  3-4 s.h.
Electives limit 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, industries, or government.

Family Science

Option 1: Home Economics Education

Graduates can enter the careers described for the B.A., Family Science—Option 1. The B.S. degree enables students to obtain greater depth and breadth in the natural and social sciences by completing the following courses in addition to the courses required for the B.A., Family Science—Option 1:

6-7 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:

22.122-3 Basic Algebra I and Basic Geometry or high school equivalent  6 s.h.
22.123-4 Calculus I and Calculus II  8 s.h.
24.121 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 required in place 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 15990 Cooperative Education Internship at the time of their work experience and for 15990 Home Economics Internship during the subsequent semester.

Honor Program 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 completed in home economics. Honor work consists of 17.59 Honors Seminar: Home Economics and 17.122, 17 Home Economics: Honors Home Economics, in which students do creative work or a research project. A written report or honors thesis and an oral examination are required.

In addition, students may contract with an instructor to receive honors credit for any 100-level or above home economics course, 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 of home economics 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-nonpass 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 at the time of selecting courses.

Graduate Programs

The demand for well-trained professional home economics extends the number of opportunities for graduates with advanced degrees in home economics. A master's degree program in consumer affairs, housing, and family life education is open to students interested in teaching or in preparing for positions in colleges, community services, business, industry, and government.

The program prepares students to work through specialization in one of two subject areas: apparel, fiber art, and design; or family science. The department offers both thesis and nonthesis tracks. Students are encouraged to consult with advisors and teachers in the department for the planning of their programs of study.

The program of study offered by the Home Economics Department includes courses in the areas of family economics, nutrition, human behavior, and human resource management. Students may choose to specialize in one of these areas to develop a concentration of knowledge in a particular field.
creative work. The thesis may be undertaken within or in cooperation with related departments or colleges.

To be unconditionally admitted, 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 unconditionally strong background in their subject area may need to take additional courses 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 courses will not apply to the student's graduate program. Approximately one-third of the student's coursework is completed in departments other than business economics; this suggests work must have some breadth and depth and the courses must be taken for a letter grade except under special conditions. Students selecting the M.S. degree program should anticipate additional courses in the social or physical sciences that will be determined in consultation with their advisor.

All students in the M.A. and M.S. programs are required to take ECON 5161, Business Administration and Philosophy of Home Economics and a minimum of 12 semester hours of 7000-level Research Methods and/or 71200 Seminar and Structure in Art. Those in the thesis track also complete 71201 Research Problems and 71202 Advanced Studio Problems and 71209 Thesis. Those in the non-thesis track also complete 71200 Special Projects Seminar.

All degree options require written and oral comprehensive examinations.

Apparel, Fiber Art, and Design

Graduate study in apparel, fiber art, and design may be planned to lead to a Master of Science 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 specializations. 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 limited to 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:

17250 Readings in Apparel, Fiber Art, Design 2-3 s.h.
One of the following:
17253 Advanced Problems in Interior Design 3 s.h.
17260 Graduate Workshop in Fiber 3 s.h.
21782 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.
17182 Weaving 3 s.h.
17186 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, journalism, photography, 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, food 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 or 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.
17345 Seminar: Educational Strategies in Family Science 3-6 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, sociology, social work, sociology, or statistics will strengthen the individual student's program.

Master of Arts in Teaching

The Master of Arts in Teaching program is designed for students with an undergraduate degree in home economics who have had some preparatory education in teaching. The program is nonthesis and requires written and oral comprehensive examinations. Graduates fulfill 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 12 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, 15119 Human Relations for the Classroom Teacher, and two courses in each of the following: housing and interior design, family development, food and nutrition, mathematics in family management, and textiles and clothing

Other courses required for the M.A.T. program are:

136 LIBERAL ARTS/Home Economics
Financial aid

Several annual departmental awards recognize undergraduate students for their outstanding qualities and performance. The Faculty Book Award recognizes the sophomore home economics major with the highest grade-point average. The student in each class with the highest grade-point average, provided the grade-point average is at least 3.7, is awarded a Certificate of Outstanding Academic Achievement. The Margaret Foster Hall Award recognizes an outstanding junior scholarship student who demonstrates the qualities of leadership and scholarship. The Mary Lupe Sprenger Memorai Award is given to an outstanding home economics senior. The Mary Goodspeed Barnes Senior Scholaristic Achievement Award is given to the senior with the highest grade-point average during the junior and senior years. Omicron Nu, a home economics honor society, awards undergraduate scholarship. There is also the World Scholar Merit Award for graduating seniors.

For scholarships see for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The Mary Goodspeed Barnes Graduate Scholarship is awarded to the graduate student with the highest grade-point average during the junior and senior years as a home economics major at The University of Iowa. The Iowa Home Economics Association provides one scholarship, and the Omicron Nu Honor Society provides one. Omicron Nu awards a graduate student scholarship. Certificate of Outstanding Academic Achievement are given to graduate students who maintain a 4.0 grade-point average.

A limited number of assistantships are available to graduate students.

Courses

Primarily for Undergraduates

17-121 Cooperative Education Internship 1-6 h.
17-125 Human Development and the Family 3 h.
17-130 Education Psychology 3 h.
17-130 Methods: Home Economics 3 h.
17-191-192 Observation and Laboratory Practice in the Secondary School 12 h.
17-167 History of Western Education 2 h.
17-167 Philosophies of Education 2 h.

Certification Program

Students with the B.A. or B.S. degree in home economics may enroll in the certification program in order to meet the requirements for teaching vocational home economics in secondary schools. Courses for this program are selected according to the student’s background and professional goals. See the “College of Education” and “Secondary Education” sections of the Catalog.

17-121: Curriculum: Home Economics 3 s.h.
17-128: Evaluation: Home Economics 3 s.h.
17-130: Educational Psychology 3 s.h.
17-130: Methods: Home Economics 3 s.h.
17-191: Observation and Laboratory Practice in the Secondary School 12 s.h.
17-167: History of Western Education 2 s.h.
17-167: Philosophies of Education 2 s.h.
Hospital and Health Administration

See "College of Medicine."

Iowa Lakeside Laboratory

Director: Richard V. Hedin
Professor: Richard V. Hedin (Biology, The University of Iowa), George G. Brown (Zoology, Iowa State University), Robert W. Crocker (Biology, The University of Iowa), Lawrence J. Elter (Biology, University of Northern Iowa), Donald R. Farnaz (Biology, Iowa State University), Lawrence G. Mitchell (Zoology, Iowa State University), Lois E. Tiffany (Biology, Iowa State University)

Visiting professors: William J. Platt (Associate Professor of Biology, Tall Timbers Research Station, Tallahassee, Florida), Charles W. Reain (DeVoe Herterling, Philadelphia Academy of Natural Science)

The Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of prairie and forest along the west shore of Lake Okoboji in northeast Iowa.

The laboratory was established in 1909 under the leadership of Thomas H. McMillan, whose surname as a University of Iowa botanist and geologist from 1878 to 1914 was recognized by his appointment as University president, 1914-1916. The lab site was the first area set aside by the conservation and study of the rich flora and fauna of the northern Iowa lake and prairie regions. Since 1947, The University of Iowa has cooperated with Iowa State University and the University of Northern Iowa in the lab program. Representatives of the three schools make up the advisory board, which determines the scientific and educational policies of the lab.

The Iowa Lakeside Laboratory offers course work in two five-week terms during the summer season. Enrollment is limited to 15 students, 5 semester hours of credit per term.

The laboratory gives advanced undergraduate and graduate students the opportunity to study plant and animal life in its natural setting. Such supplementations, and does not replace, regular course work given formally by accredited colleges.

Students working for advanced degrees will find excellent opportunities to develop projects in the laboratory.

Teaching and research facilities include seven laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large hall. Financial Aid

The University of Iowa has established several Thomas H. McMillan Scholarships in Natural Science for undergraduate and graduate students studying at 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 their registrars for information. Students from other institutions must apply for admission to one of the following 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

Permission of the instructor is 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.

L108 Field Natural History 3 s.h.

L109 Field Ethology 3 s.h.

L110 Field Genetics 3 s.h.

L112 Field Botany 3 s.h.

L114 Field Zoology 3 s.h.

L115 Field Aquatics 3 s.h.

L116 Field Ecology Projects 3 s.h.

L117 Field Entomology 3 s.h.

L118 Field Botany 3 s.h.

L119 Field Aquatic Ecology 3 s.h.

L120 Field Meteorology 3 s.h.

L121 Field Palynology 3 s.h.

L122 Field Oceanography 3 s.h.

L123 Field Limnology 3 s.h.

L124 Field Water Algae 3 s.h.

L125 Field Hydrology 3 s.h.

L126 Field Ethology 3 s.h.

L127 Field Ethology and Hydrology 3 s.h.

L128 Field Marine Biology 3 s.h.

L129 Field Marine Ecology 3 s.h.

L130 Field Oceanography 3 s.h.

L131 Field Limnology 3 s.h.

L132 Field Marine Biology 3 s.h.

L133 Field Ethology and Hydrology 3 s.h.

L134 Field Marine Biology 3 s.h.

L135 Field Marine Ecology 3 s.h.

L136 Field Oceanography 3 s.h.

L137 Field Limnology 3 s.h.

L138 Field Marine Biology 3 s.h.

L139 Field Marine Ecology 3 s.h.

L140 Field Oceanography 3 s.h.

L141 Field Limnology 3 s.h.

L142 Field Marine Biology 3 s.h.

L143 Field Marine Ecology 3 s.h.

L144 Field Oceanography 3 s.h.

L145 Field Limnology 3 s.h.

L146 Field Marine Biology 3 s.h.

L147 Field Marine Ecology 3 s.h.

L148 Field Oceanography 3 s.h.

L149 Field Limnology 3 s.h.

L150 Field Marine Biology 3 s.h.

L151 Field Marine Ecology 3 s.h.

L152 Field Oceanography 3 s.h.

L153 Field Limnology 3 s.h.

L154 Field Marine Biology 3 s.h.

L155 Field Marine Ecology 3 s.h.

L156 Field Oceanography 3 s.h.

L157 Field Limnology 3 s.h.

L158 Field Marine Biology 3 s.h.

L159 Field Marine Ecology 3 s.h.

L160 Field Oceanography 3 s.h.

L161 Field Limnology 3 s.h.

L162 Field Marine Biology 3 s.h.

L163 Field Marine Ecology 3 s.h.

L164 Field Oceanography 3 s.h.

L165 Field Limnology 3 s.h.

L166 Field Marine Biology 3 s.h.

L167 Field Marine Ecology 3 s.h.
### 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, audiovisual 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**

- 19:90 Social Scientific Foundations of Mass Communication
- 19:91 Cultural and Historical Foundations of Communication

Students may apply for admission to full major status after they complete these requirements, or after at least 33 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. Students who do not make the required grade point average, or who do not meet the specific requirements of the School of Journalism and Mass Communication, are not admitted to the program. The School also reserves the right to limit the number of students admitted to each major.

### Mass Communication Laboratory Sequence

This sequence offers students an opportunity to practice their skills and proficiency as professional communicators while they are still in school. The sequence is designed so that students can combine writing, reporting, production, and communication skills within the context of their intellectual, media, and career interests. The Laboratory offers students the opportunity to gain practical experience in a variety of media, including television, radio, print, and electronic media. Students in the sequence develop and produce multimedia projects that are accessible to the general public and provide a valuable addition to their academic portfolio. The sequence is designed to provide students with practical experience in the field of mass communication.

The sequence consists of a series of hands-on projects that allow students to gain real-world experience in various aspects of mass communication. These projects include the production of printed materials, such as newsletters, brochures, and flyers; the production of audio and video content; and the production of online content. Students are encouraged to think creatively and to use their skills to create content that is both engaging and informative. The sequence is designed to be flexible, allowing students to choose projects that align with their interests and career goals.

The sequence is open to all students, regardless of their major. However, students are encouraged to take at least one course in each of the four main areas of mass communication: writing, reporting, production, and communication. The sequence is designed to be taken over the course of four years, with one course per semester.

### News-Editorial 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 sequence is designed to give students a thorough understanding of the field of journalism and to prepare them for careers in the field. The sequence consists of a series of hands-on projects that allow students to gain real-world experience in the field of journalism. These projects include the production of printed materials, such as newsletters, brochures, and flyers; the production of audio and video content; and the production of online content. Students are encouraged to think creatively and to use their skills to create content that is both engaging and informative. The sequence is designed to be flexible, allowing students to choose projects that align with their interests and career goals.

The sequence is open to all students, regardless of their major. However, students are encouraged to take at least one course in each of the four main areas of mass communication: writing, reporting, production, and communication. The sequence is designed to be taken over the course of four years, with one course per semester.
One production course, selected from:
19:122 Broadcast Journalism Workshop
19:131 Photojournalism I
19:141 Intro to Typography
19:152 Print Design and Production
19:171 Mass Communication Lab
Journalism electives
3 s.h.
9 s.h.
Total required
31 s.h.
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 (19:156, 19:157, and 19:158)
19:151 Communication Research Methods
Two or more courses, selected from:
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 Development Support
19:158 Newspaper/Editorial Projects
19:159 Electoral Publics and the Mass Media
19:161 Law and the American Media
19:172 Seminar in Mass Communication Research
3 s.h.
Journalism electives
6 s.h.
Total required
31 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:
19:59 Social Scientific Foundations of Communication 3 s.h.
19:91 Cultural and Historical Foundations of Communication 3 s.h.
19:95 Media and Consumers 3 s.h.
The minor is not intended to be sufficient professional preparation for a career in journalism or mass communication. The minor should be regarded only as a cursory introduction to the field.

Transfer Students
All transfer students will be classified initially as premajors. They will apply for major status after earning at least 55 credit hours (including those from Iowa and other institutions) and completing 19:90 Social Scientific Foundations of Communication and 19:91 Cultural and Historical Foundations of Communication. Neither of these courses will be waived on the basis of transfer credits. Thus, a transfer student will be a premajor for at least one semester.

The school's policy is to accept journalism transfer credits from another institution for up to, but not more than, 30 percent of the student's total number of credits toward a major in journalism at Iowa. Other course work taken elsewhere might be applicable toward fulfilling elective and second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the student's journalism adviser 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 communication. Applicants should indicate the emphasis to which they are applying.

Each emphasis requires 30 semester hours of approved course work, the completion of a research 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 experience in journalism and communication and for those who do not.

Program requirements for students with no academic or professional experience in journalism and communication:

19:220 Master's Seminar 3 s.h.
19:220 News Reporting and Writing 3 s.h.
(does not count toward M.A. degree) 19:225 News Editing
19:226 News Editing Laboratory 3 s.h.
or 19:231 Mass Communication Laboratory 3 s.h.
(19:231 option intended for students with special interest in public relations or organizational communication)
Electives 18 s.h.
19:249 Master's Research (thesis) 3 s.h.
Final examination, last period of enrollment
Program requirements for students with professional experience in journalism or communication:

19:220 Master's Seminar 3 s.h.
Electives in the school (minimum) 9 s.h.
Electives in other departments up to 15 s.h.
19:226 Master's Research 3 s.h.
Final examination, last period of enrollment
Students must complete a major professional project (19:225) under supervision of a graduate faculty member during the last period of enrollment.

Study of elective courses in the school and in other departments is determined with their advisers.

Communication and Mass Communication Emphasis

This emphasis offers a special concentration 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 70-hour program after successful completion of their M.A. work.

Program requirements:

19:220 Master's Seminar (two semesters) 2 s.h.
19:221 Approaches to the Study of Communication Issues and Concepts 3 s.h.
One of the following methods 3 s.h.
19:340 Communication Research: Historical Approaches
19:241 Communication Research: Behavioral Approaches

19:242 Communication Research: Phenomenological Approaches
19:243 Communication Research: Legal Issues Approaches
Electives in journalism and mass communication and in other departments 15 s.h.
19:249 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 adviser.

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 plan to engage in subsequent Ph.D. work. These students must, during the last period of their enrollment, complete a major professional project (19:225) under the supervision of a graduate faculty member. Program requirements for the professional track include:

Electives 18 s.h.
19:220 Master's Seminar 3 s.h.
19:307 Third World Development Support 3 s.h.
19:241 Mass Communication Laboratory 3 s.h.
19:249 Master's Research (Project) 3 s.h.
19:249 Master's Research 1 s.h.
19:307 Third World Development Support 3 s.h.
19:241 Mass Communication Laboratory 3 s.h.
19:249 Master's Research (Project) 3 s.h.
Geography

44:249 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 (19:249) under the supervision of a guidance committee consisting of at least two graduate faculty members. Program requirements for the philosophical track include:

Journals:

19:241 Communication Research: Phenomenological Approaches
19:243 Communication Research: Legal Issues Approaches
Electives in journalism and mass communication and in other departments 15 s.h.
19:249 Master's Research 3 s.h.
Final examination, last period of enrollment

Students with no professional or academic experience in mass communication are encouraged to take the undergraduate foundation course 19:100 Social Science Foundations of Communication. This course, however, does not count toward the M.A. degree.

Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such perspectives emphasize philosophical, evaluative, and critical inquiry into relationships between media mass and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, which turn most frequently to investigations of historical, legal, economic, social, and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and individualized studies.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of students working to understand mass communication in its cultural contexts. A more complete description of...
the graduate program is available from the school of Journalism and Mass Communication, and interested persons 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, typography, audio, video, typing, and print production, including video display terminals and modern typesetting equipment. Many students use the university and other facilities of the award-winning University of Iowa student newspaper, The Daily Iowan, housed in the Communications Center. Special facilities within the Communications Center include the Leslie G. Moeller Seminar Room and the Mitchell Special Presentation Rooms. The school has its own resource center and provides accommodations for offices of the Iowa High School Press Association and the Quill and Scroll Society. A display gallery is available for student 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 semiannual 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 $60,000 in scholarships 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 Communications 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 visitors speak during any part of the year from John F. Murray 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-Sk), and Women in Communication Incorporated (WIC). Each year, the Leslie G. Moeller Chapter of Kappa Tau Alpha sponsors the election of an outstanding contributor to 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 storytelling and the history of London and British media available from The City University. In addition, internships may be arranged with London news media.

Courses

All courses listed in 100-level or above require at least junior standing or major status and/or consent of instructor.

1900: Journalism and Mass Communication

Cooperative Education Internship

A 1-credit internship administered by the Cooperative Education Office is based on a cooperative basis by alumni student employers. A 1-semester or 1-year, internship and mass communication course and any applicable required upper-division student graduates. Students register for this course approval from the mass communications program.

2990: Introduction to Broadcasting and Film

Popularity

For students with no previous experience, this is an introductory course in the production of radio and television programs. Summer, day, and/or audio production required. Emphasis on technological principles and applications for production and broadcasting.

2991: Introduction to Communication Skills 1, 2, 3, 4

Stereol of short courses stressing development of a variety of oral communication skills. Includes radio, audio, video, print, photography, and public speaking, group communication, writing, and current methods; each section is 1 semester hour. Prerequisites: no credit may be repeated in 1 offerings. Prerequisites may appear in multiple 1 hour.

1920: Writing and Editing for a Community Audience

1921: Free-Lance Writing

1922: Adoption of Technical Terminology

1923: Language of Communication: An Introduction to Technical Terminology, historical, biographical, essays, policies, and abstracts of the publication. Published by Division of Communications Education.

1924: Social Skills in Communication

1925: Public Relations in a Communication Setting


1927: Media and Communications of Cooperation

1928: Theoretical and Practical Communication

1929: Introduction to Journalistic Writing

1930: Fundamentals of News Writing and Editing

1940: Fundamentals of News Writing and Editing

1950: Fundamentals of News Writing and Editing

1960: Fundamentals of News Writing and Editing

1970: Fundamentals of News Writing and Editing

1980: Fundamentals of News Writing and Editing

1990: Fundamentals of News Writing and Editing

2000: Fundamentals of News Writing and Editing

2010: Fundamentals of News Writing and Editing

2020: Fundamentals of News Writing and Editing

2030: Fundamentals of News Writing and Editing

2040: Fundamentals of News Writing and Editing

2050: Fundamentals of News Writing and Editing

2060: Fundamentals of News Writing and Editing

2070: Fundamentals of News Writing and Editing

2080: Fundamentals of News Writing and Editing

2090: Fundamentals of News Writing and Editing

2100: Fundamentals of News Writing and Editing

2110: Fundamentals of News Writing and Editing

2120: Fundamentals of News Writing and Editing

2130: Fundamentals of News Writing and Editing

2140: Fundamentals of News Writing and Editing

2150: Fundamentals of News Writing and Editing

2160: Fundamentals of News Writing and Editing

2170: Fundamentals of News Writing and Editing

2180: Fundamentals of News Writing and Editing

2190: Fundamentals of News Writing and Editing

2200: Fundamentals of News Writing and Editing

2210: Fundamentals of News Writing and Editing

2220: Fundamentals of News Writing and Editing

2230: Fundamentals of News Writing and Editing

2240: Fundamentals of News Writing and Editing

2250: Fundamentals of News Writing and Editing

2260: Fundamentals of News Writing and Editing

2270: Fundamentals of News Writing and Editing

2280: Fundamentals of News Writing and Editing

2290: Fundamentals of News Writing and Editing

2300: Fundamentals of News Writing and Editing

2310: Fundamentals of News Writing and Editing

2320: Fundamentals of News Writing and Editing

2330: Fundamentals of News Writing and Editing

2340: Fundamentals of News Writing and Editing

2350: Fundamentals of News Writing and Editing

2360: Fundamentals of News Writing and Editing

2370: Fundamentals of News Writing and Editing

2380: Fundamentals of News Writing and Editing

2390: Fundamentals of News Writing and Editing

2400: Fundamentals of News Writing and Editing

2410: Fundamentals of News Writing and Editing

2420: Fundamentals of News Writing and Editing

2430: Fundamentals of News Writing and Editing

2440: Fundamentals of News Writing and Editing

2450: Fundamentals of News Writing and Editing

2460: Fundamentals of News Writing and Editing

2470: Fundamentals of News Writing and Editing

2480: Fundamentals of News Writing and Editing

2490: Fundamentals of News Writing and Editing

2500: Fundamentals of News Writing and Editing

2510: Fundamentals of News Writing and Editing

2520: Fundamentals of News Writing and Editing

2530: Fundamentals of News Writing and Editing

2540: Fundamentals of News Writing and Editing

2550: Fundamentals of News Writing and Editing

2560: Fundamentals of News Writing and Editing

2570: Fundamentals of News Writing and Editing

2580: Fundamentals of News Writing and Editing

2590: Fundamentals of News Writing and Editing

2600: Fundamentals of News Writing and Editing

2610: Fundamentals of News Writing and Editing
Courses Approved for LASP Certificate

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

**Anthropology**
- 313-105 Ethnology of South America 3 s.h.
- 313-102 Ethnology of Mesoamerica 3 s.h.
- 313-101 Social Anthropology of the Caribbean 3 s.h.
- 313-100 Latin American Economy and Society 3 s.h.
- 313-100 Latin American Studies Seminar 3 s.h.
- 113-103 Archaeology of Mesoamerica 3 s.h.

**Art**
- 110-105 Art of Pre-Columbian America 3 s.h.

**History**
- 16111 Colonial Latin America 3 s.h.
- 16112 Introduction to Modern Latin America 3 s.h.
- 16113 The Mexican Revolution 3 s.h.

**Political Science**
- 30-144 Latin American Government 3 s.h.
- 30-105 Major States of Latin America 3 s.h.
- 30-100 Inter-American Relations 2-3 s.h.

**Portuguese**
- 38-100 Modern Brazilian Fiction I: Short Story 2 s.h.
- 38-100 Modern Brazilian Fiction II: Novel 2 s.h.
- 38-100 Brazilian Literature I 3 s.h.
- 38-100 Brazilian Literature II 3 s.h.
- 38-100 Nineteenth-Century Brazilian Fiction 3 s.h.
- 38-114 Culture and Civilization of the Portuguese-Speaking World (Taught in English) 3 s.h.
- 31-150 Latin American Studies Seminar 3 s.h.

**Spanish**
- 32-100 Contemporary Latin American Narrative (Taught in English) 3 s.h.
- 35-100 Contemporary Spanish American Fiction 3 s.h.
- 31-102 Spanish American Poetry 3 s.h.
- 36-110 Spanish American Drama 3 s.h.
- 31-100 Short Story of Spanish America 3 s.h.
- 31-100 Literature of the Discovery and Conquest of Spanish America 3 s.h.
- 31-100 Spanish American Literature of Fantasy 3 s.h.

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**Library and Information Science**

**Director:** Carl Orgen  
**Professor emeritus:** Velma Jean Oehme  
**Associate professors:** Carl Orgen, James Rice  
**Associate professor emeritus:** Lueken L. Newsom  
**Assistant professors:** quilena Beriaume, TerrenceRW. R. Patrick Lyddy, Gerald Hodges, Kathleen Teunser  
**Lehrer:** William Bealix  
**Assistant professor emeritus:** Donald Alsdin  
**Affiliated faculty:** Ray Arrent, Dave M. Bentz, John Stauffer  
**Degree offered:** M.S.

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.

This 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.

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**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 the dissemination of information; a professional attitude toward the librarian's role as mediator between user and information; and a commitment to improve the quality of library and information services in response to the needs of all segments of society.

- Demonstrate an understanding of information sources, the flow of information through society, and the role of libraries and information centers in the process.

- Demonstrate an appreciation for the contribution that information, libraries, and learning can make to the richness of life, and the ability to convey that appreciation to others.

- Demonstrate mastery of the techniques and procedures of effective information service (that is, the selection, acquisition, organization, and 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.

- Cultivate research activities that help 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**

Engage in research on library and information science problems that advance 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 trustees 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 allowed, 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 preparatory for careers in all types of libraries is provided by the school’s Master of Arts Program.

The school also offers a nondegree graduate program for certification in school librarianship, as well as a certification program leading to the master’s degree.

Its graduates hold positions in public, school, academic, and special libraries, serving in such roles as administrators, bibliographers, catalogers, reference specialists, information scientists, and children’s librarians.

The Master of Arts degree in library and information science requires 33 semester hours of graduate credit with a minimum grade-point average of 3.5. In addition, the student must pass a comprehensive examination.

Basic Plan of Study

The program consists of a core of required courses basic to all areas of librarianship, and electives. The student's plan of study should be developed carefully in relation to career objectives. All courses to be applied to the 33-semester-hour program must be approved by the adviser.

Required core courses (required of all M.A. candidates) 15 s.h.
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 18 s.h.

It is strongly recommended that the student's electives include a bibliographic 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 preparation for library and information science. Although many electives offer other cultural and intellectual support to preparation for librarianship, they cannot be shown to warrant replacement of needed courses in a brief one-year program. Electives outside the department must be earned following affiliation to the School of Library and Information Science, and must not exceed 6 semester hours for students having no previous coursework in library sciences or 9 semester hours for those with such previous courses. 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 comes to the program with extensive course work 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 21:249 Research Methods, or the equivalent. The purpose of the thesis option is twofold: to expand research competence and to provide one means of independent study to a student with extensive preparation in library and information science.

A minimum of 9 semester hours of graduate credit must 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 if the level of 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 summers only, a minimum of four semester sessions. Maximum graduation course load is 15 semester hours in regular semesters, 9 semester hours in summer sessions. The maximum course load may not be advised for students with substantial equal-year 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 uses services, materials, and organizational structures of public libraries makes the area of librarianship a challenging one.

A major concern of public librarians is to design innovation service programs to reach segments of the population that are not served, in order to provide a full range of services to all members of the community. Management skills often are needed in these services.

Plan of Study

Required core courses 15 s.h.
Suggested electives 18 s.h.
21:013 Library Services to Adults
21:227 Multi-Media Concepts in Libraries
21:231 The Public Library
21:247 Information Storage and Retrieval
21:249 Research Methods
21:351 Advanced Reference
21:352 Description and Organization of Materials I
21:382 Practicum in Libraries
Bibliography courses
Courses relating to service to children and young adults:
21:129 Literature for Children I
21:124 History of Books for Young People
21:250 Literature and Storytelling for Children
21:193 Literature for Adolescents

To library and information personnel and library trustees opportunities for continuing education that advances and updates their awareness of current developments in library operations and information services.

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21:352 Description and Organization of Materials I
21:382 Practicum in Libraries
Bibliography courses
Courses relating to service to children and young adults:
21:129 Literature for Children I
21:124 History of Books for Young People
21:250 Literature and Storytelling for Children
21:193 Literature for Adolescents
School Library Media Work

The school library media center makes available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the media specialist includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference services.

To qualify as a school library media specialist in the state of Iowa, students must hold a valid teaching certificate and be appropriately endorsed 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 want to pursue school library media work but who do not plan on working in Iowa are encouraged to follow the program listed below. Students who do not hold a valid teaching certificate need to consult with their advisor before pursuing this program. The program given below is designed to prepare students for a K-12 endorsement, and courses 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 or library other than the one in which the student may be employed.

Plan of Study

Required core courses 15 s.h.
Suggested electives 18 s.h.

21:232 The College and University Library 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:497 Research Methods 3 s.h.
21:525 Advanced Reference 3 s.h.
21:522 Description and Organization of Materials II 3 s.h.
21:525 Government Publications 3 s.h.
21:244 Medical Librarianship and Bibliography 3 s.h.
21:355 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21:282 Practicum in Libraries 3 s.h.
79:117 The Community College (required for students receiving 75 or more work in community colleges) 3 s.h.

Work in Special Libraries

Special Librarianship includes careers in information centers serving banks, industrial firms, museums, historical societies, and law firms. The ability to design service suitable for the particular organization, and substantial subject knowledge in the relevant area are characteristics important in such a career. Indexing, abstracting, literature searching and analysis, design of information systems, translation, and current awareness services are found more usually in special library work than in more traditional libraries.

Plan of Study

Required core courses 15 s.h.
Suggested electives 18 s.h.

21:222 Special Libraries 3 s.h.
21:222 The College and University Library 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:247 Research Methods 3 s.h.
21:253 Advanced Reference 3 s.h.
21:252 Description and Organization of Materials II 3 s.h.
21:244 Medical Librarianship and Bibliography 3 s.h.
21:255 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21:282 Practicum in Libraries 3 s.h.
21:244 Bibliography of Library Materials for Children and Young Adults 3 s.h.

Iowa School Library Media Certification, K-12

The school offers approved programs for Iowa state certification in these areas: school librarians for kindergarten through grade 12 (Iowa endorsement 34) and director of library services for kindergartens through grade 12 (Iowa endorsement 11). Since these endorsements are tied directly to the teaching certificate, students must hold a valid Iowa teaching certificate to qualify for these endorsements.

Student who complete an M.A. degree with the program listed under “School Library Media Work” will qualify for endorsements 34 and 51.

Endorsement 34 may be obtained through completing 10 semester hours of undergraduate and graduate course work approved by the advisor. Twenty of these hours must be earned at The University of Iowa. Included in the 20 semester hours must be 21:151-153, 21:220, 21:233, and 21:252 or their equivalents as determined by the instructors teaching the courses. In order to pursue such a second degree program, however, a student must have been accepted for admission to the School of Library and Information Science.

Iowa Community College Certification

The school offers an approved program for librarianship resource specialist in an area vocational school or community college (Iowa endorsement 75). Students receive this endorsement upon completion of the M.A. degree with the program listed under “College and University Library Work” and 79:171: The Community College. A teaching certificate is not required for this certification program. Students wishing to pursue community college work in another state may want to take 79:171 The Community College as an elective.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other University units are offered as primary goal the integration of the two areas of study, allowing the student to contribute to one disciplines the insights and experiences gained in the other.

Although there is a mechanism by which dissertation credits can be obtained in an as-hoc basis, the School of Library and Information Science has established formal programs with the College of Law and the College of Business Administration. The students enrolled in such a joint program work with an advisor in the School of Library and Information Science to ensure the benefits of integration.

Objectives of a joint program must be consistent with the goals stated above, and since the degree is offered to students, are a matter of advising. For instance, a student who seeks a career in law or business library requires a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program the student must apply and be accepted by the School of Library and Information Science and
University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two and one-half million volumes in the Main Library and 12 Departmental Libraries. An average of 60-90 thousand volumes is acquired annually. The serials collection is extensive, with more than 32 thousand current subscriptions. The third floor of the Main Library houses the government publications, map, and special collections rooms, as well as art and bound periodicals.

The location of the School of Library and Information Science on this floor allows quick access to these frequently used collections. 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 interlibrary loan, praxis, experience, and personal use: the State Historical Society Library in Iowa City, the Iowa City and Cedar Rapids public and school libraries, the CCE, 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

Library 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 Computer Center, Audiovisual Production Lab, and Curriculum Resources Lab.

The Curriculum Resources Lab contains an extensive collection of book and non-book 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 community. All University students, staff, and faculty may use the center's computers for University-related research, preparation, and 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 of students in the school allows faculty members to get to know students individually and to maintain an interest in their professional development. All training to be applied to the 36-semester-hour program must be approved by the advisor.

Student Activities

Students have a variety of activities available to aid in their academic and professional development. These activities include short courses, workshops, seminars, field trips, and teleconferences to provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Library and Information Science Student Organizations (LISOS) is composed of all students accepted into the M.A. program. The Executive Committee of LISOS (ECL) serves as a liaison between students and faculty/administration in matters of common concern, and as a planning group for student activities. ECL sends a representative to faculty meetings.

Placement

The school provides active placement assistance to its graduates by means of bulletin board announcements, seminars on resume-writing and interviewing, and personal counseling. The University's Educational Placement Office is a weekly listing of job openings and provides a career information 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 48 percent, and special libraries 13 percent. Iowa graduates currently work in libraries in 44 states and nine foreign countries. Strong personal qualifications, job flexibility, 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 2.5 on a 4.0 scale, and at least 85 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 letters of recommendation and personal interviews with the school director, the director's assistant, and another member of the faculty. Alternate interviews are arranged when necessary.
makes it impossible for an applicant to come to Iowa City. The school does not accept every applicant who meets the minimum admission requirements; an admissions committee selects each class on a competitive basis.

Foreign students are encouraged to apply if they obtain a score of 560 or higher on the Test of English as a Foreign Language (TOEFL). Persons with slightly lower TOEFL scores may be considered for conditional admission with the understanding that they receive remedial assistance in English at the University.

Applicants are requested to write to the School of Library and Information Science for a preliminary information form. If the information provided on the form indicates that the applicant satisfies the basic admission requirements, the school will schedule a personal interview.

Prospective students are urged to begin application procedures early enough to complete all requirements by the deadlines given below. The applicant needs to allow more time if he or she has not already taken the Graduate Record Examination (GRE) General Test.

Completed applications should be received by the school by March 1 for fall-semester consideration, October 1 for the spring semester, or February 1 for the summer session. Decisions of the admissions committee are announced two to three weeks after each deadline. Late applications are considered if places are still available in a given semester, however, often is not available for late applicants.

Financial Aid

The School of Library and Information Science awards partial-tuition scholarships, as well as several small undergraduate and graduate assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average and have combined verbal and quantitative scores of 1000 on the GRE General Test. Those who do not meet these requirements when entering the program may choose to receive financial aid after completing 12 semester hours of graduate study with 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, or other forms of 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, Calvin Hall.

Students interested in part-time employment should contact the Libraries in the Iowa City area. Positions usually are available in the University Libraries.

Courses

21:600 Cooperative Education Internship 9 s.h.
21:622 Library Services for Children I 3 s.h.
21:624 History of Books for Young People 3 s.h.
21:634 Projects in Library Use and Information Search and Retrieval through the Mediated Reference Counter 3 s.h.
21:626 Libraries and Storytelling for Children 3 s.h.
21:671 Reference 3 s.h.
21:673 Special Collections, Preservation, and Archival Science 3 s.h.
21:675 Descriptive and Organizational Strategies in Library Science: The Theory of Library Classification, Classifying and Cataloging Strategies, and Access to Information Resources in the Electronic Age 3 s.h.
21:681 Foundations and Collections Development 3 s.h.
21:682 Information and Library Services 3 s.h.
21:691 Libraries and Information Centers 3 s.h.
21:693 Management of Libraries and Information Centers 3 s.h.
21:695 Library Services to Adults 3 s.h.
21:699 Library Research 3 s.h.
22:210 Social Sciences Library Project 3 s.h.
22:211 The Public Library 3 s.h.
22:216 School Library Media Center Administration 3 s.h.
22:218 Library Resources and Services 3 s.h.
22:240 Library Services to Children and Young Adults 3 s.h.
22:241 Bibliography of the Humanities 3 s.h.
22:244 Bibliography of the Social Sciences 3 s.h.
22:248 International Information Science 3 s.h.
22:251 Information Storage and Retrieval 3 s.h.
22:252 Information Storage and Retrieval 3 s.h.
22:254 Information Storage and Retrieval 3 s.h.
22:257 Information Storage and Retrieval 3 s.h.
22:258 Information Storage and Retrieval 3 s.h.
22:259 Information Storage and Retrieval 3 s.h.
22:260 Information Storage and Retrieval 3 s.h.
22:262 Information Storage and Retrieval 3 s.h.
22:264 Information Storage and Retrieval 3 s.h.
22:266 Information Storage and Retrieval 3 s.h.
22:268 Information Storage and Retrieval 3 s.h.
22:270 Information Storage and Retrieval 3 s.h.
22:272 Information Storage and Retrieval 3 s.h.
22:274 Information Storage and Retrieval 3 s.h.
22:276 Information Storage and Retrieval 3 s.h.
22:278 Information Storage and Retrieval 3 s.h.
22:280 Information Storage and Retrieval 3 s.h.
22:282 Information Storage and Retrieval 3 s.h.
22:284 Information Storage and Retrieval 3 s.h.
22:286 Information Storage and Retrieval 3 s.h.
22:288 Information Storage and Retrieval 3 s.h.
22:290 Information Storage and Retrieval 3 s.h.
22:292 Information Storage and Retrieval 3 s.h.
22:294 Information Storage and Retrieval 3 s.h.
22:296 Information Storage and Retrieval 3 s.h.
Linguistics

Chair: Nora C. England
Professor: Andréas Kiritchenko, Robert S. Werch
Associate professors: Gregory N. Carlson, Gregory K. Irwin, Catherine O. Rieker
Assistant professor: William D. Davis

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

Linguistics is the science that studies the organizing principles underlying human language. There are many indicators that such principles exist in language. Children normally learn to use their native language before they enter school, and without much direct instruction. People can understand and use languages they have never heard before. All languages have several ways of saying the same thing and all have grammatical rules. Languages change through time. Damage to a particular part of the brain may be related to a particular type of linguistic problem, whatever the language. All languages are systems with some unique properties. Some universal properties, and some properties shared with other languages that may or may not be historically related. Linguists do not attempt to learn many languages. Rather, they consider the languages of the world as data to be analyzed by common principles.

Linguistics is a science with many laboratories. One linguist's laboratory may consist of a library and pencil and paper. Another may work with acoustical equipment. Others need computers. Some go into seldom-visited places to study, describe, and analyze little-known languages that may be in danger of extinction. Some go into their own communities to study the relationship between language variation and socioeconomic status, race, or sex. Still others, interested in language change, study ancient languages.

Linguistics is not limited to scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs that are relevant for Chicano, Black, and Native American. They may help those who develop intelligence and achievement tests avoid discrimination against those who are not middle-class while Americans, or they may work with speech clinicians to retard people with linguistic disabilities.

Undergraduate Program

High scores on verbal, quantitative, and 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 syntactic-semantic (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of special disciplines enable students to tailor the program to their own interests.

The major in linguistics requires 24 semester hours of course work. Majors must take an introductory linguistics course (103:100), courses in phonology (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 family (e.g. 103:125, 103:126) or equivalent in another modern language (e.g. Classical Greek, Latin, Sanskrit, Old English). Remaining electives are chosen with the undergraduate adviser.

Graduate Programs

Engaging in all graduate programs is on thesis and research. Students interested in nonuniversity careers also may take advantage of courses in applied linguistics and other fields either in connection with doctoral work or as an option of the M.A. program.

Master of Arts

All students 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 103:110 Articulatory and Acoustic Phonetics, 103:111 Syntactic Analysis, 103:122 Phonological Analysis and Theory, 103:120 Historical and Comparative Linguistics, 103:121 Syntactic Theory, and 103:113 Linguistic Field Methods or an approved alternative.

Students who write a thesis take at least 6 semester hours of elective courses, exclusive of thesis hours, and receive up to 6 semester hours of thesis work and at least 9 semester hours of thesis credit for the thesis. The focus may be designed in advance by the student (in consultation with departmental approval) or may be of a self-designed option (for example, making English as a foreign language).

All electives must be approved by the student's adviser. Graduate study is open to graduate and postgraduate students (through a departmental test). Students should take at least 30 semester hours of course work and write a thesis, or at least 30 semester hours of course work and take the comprehensive examination. All students must have a minimum of 30 semester hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The highly selective Ph.D. program provides students with a strong foundation in theoretical linguistics and develops the skills necessary for exploring the close relationship between linguistics and related disciplines. The core curriculum for the program includes two upper-divisionSyntax courses (e.g. 103:122 Syntactic Theory and either 103:212 Advanced Syntactic Theory or 103:121 Syntactic Analysis), two upper-division Phonological Analysis courses (103:122 Phonological Theory and 103:211 Advanced Phonological Analysis), and at least two semesters, for a total of 18 semester hours. An approved 18-semester-hour specialty area is also required, and students must achieve a minimum of 30 foreign language, as specified by departmental regulations. Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the specific areas of doctoral specialization. The dissertation and three years of residence sites are required. In addition, all candidates are required to gain supervised experience in teaching and research.

Financial Aid

Teaching assistantships and research assistantships are available to qualified graduate students. Applications for the March 1 for the following academic year. Students applying concurrently for financial aid and admission should submit their Graduate Record Examination (GRE) Aptitude Test scores and three letters of recommendation.
Facilities

The Department of Linguistics has limited
acoustics equipment consisting of a sound
spectrograph, a studio-type tape recorder, and an
anechoic chamber. There is also a
terminal connected to the
University Union Computer Center.

The departmental reading room allows a
close relationship between faculty
and students, a considerable influence of
students on departmental affairs, and a
high degree of individual instruction.
Large part of the student's education in
Linguistics is conducted informally through
daily conversations among students and
faculty members.

Courses

Special English Courses for Foreign Students

Iowa Intensive English Program (102, 103, 104, 203C, 306) is a noncredit
program consisting of 20 hours per week of English for foreign students, including
conversation, pronunciation, listening comprehension, reading, vocabulary
development, grammar, and writing.

Prerequisite: Consent of department.

102.1 Iowa Intensive English: Conversational Skills
8 hrs.

102.2 Iowa Intensive English: Listening Comprehension
8 hrs.

102.3 Iowa Intensive English: Reading
8 hrs.

102.4 Iowa Intensive English: Grammar
8 hrs.

102.5 Iowa Intensive English: Writing
8 hrs.

103.6 Teaching Assistant Preparation in English
5 hrs.

104.6 Intermediate English course for foreign teaching assistants: instruction, conversation, pronunciation, grammar, and vocabulary.

105.10 Pronunciation and Oral Skills for Foreign Students
Prerequisite: Consent of department.

106.10 Grammar for Foreign Students
Prerequisite: Consent of department.

106.11 Written English for Foreign Students
Prerequisite: Consent of department.

108.10 Introduction to Spoken English
Prerequisite: Consent of department.

110.10 Special Instruction in ESL for Foreign Teaching Assistants
Prerequisite: Consent of department.

115.10 Cooperative Education Internship

125.10 Language and Language.
Prerequisite: Consent of department.

125.11 Language and Language.
Prerequisite: Consent of department.

130.10 Language and Formal Reasoning.
Prerequisite: Consent of department.

132.10 Special Project
Prerequisite: Consent of department.

For Undergraduates and Graduates

130.10 Introductory Linguistics
Prerequisite: Consent of department.

135.10 Language, Society, and Culture
Prerequisite: Consent of department.

136.10 Teaching English as a Foreign Language
Prerequisite: Consent of department.

137.10 Academic and Professional Writing
Prerequisite: Consent of department.

138.10 Language and Literature
Prerequisite: Consent of department.

140.10 Linguistic Field Methods
Prerequisite: Consent of department.

141.10 Historical and Comparative Linguistics
Prerequisite: Consent of department.

142.10 Topical in Linguistics
Prerequisite: Consent of department.

143.10 Historical and Comparative Linguistics
Prerequisite: Consent of department.

145.10 Historical and Comparative Linguistics
Prerequisite: Consent of department.

150.10 History of English in Europe
Prerequisite: Consent of department.

151.10 The Structure of English
Prerequisite: Consent of department.

152.10 Modern English Grammar
Prerequisite: Consent of department.

153.10 Advanced English Grammar
Prerequisite: Consent of department.

154.10 History of English in Europe
Prerequisite: Consent of department.

155.10 Advanced English Grammar
Prerequisite: Consent of department.

156.10 Advanced English Grammar
Prerequisite: Consent of department.

157.10 History of English in Europe
Prerequisite: Consent of department.

158.10 Advanced English Grammar
Prerequisite: Consent of department.

159.10 Advanced English Grammar
Prerequisite: Consent of department.

160.10 Advanced English Grammar
Prerequisite: Consent of department.
change in emotional language (3.0). Pennsylvania State University.

160.211 Advanced Psychological Theory 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.212 Advanced Analytic Theory 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.211 Advanced Psychological Theory 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.212 Advanced Analytic Theory 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.

160.221 Social Psychology 3.0
Current trends in contemporary psychological theory. Includes
comparisons among various psychological theories (e.g., behavioral, cogni-
tive, humanistic). Prerequisite: 160.210 or permission of instructor.
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 or 25-36 Calculus I 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. 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-115 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-154B 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-50 Elements of Group Theory, 22M-55 Fundamental Properties of Spaces and Functions, or 22M-106 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 course selection by the program of education and examinations carried on by the principal actuarial organizations.

Following a sequence in calculus and linear algebra (22M-25-26 Calculus I-II or 22M-45-46 Accelerated Calculus I-II, 22M-57 Introduction to Linear Algebra, and 22M-30), the student should take 22C-153 Introduction to Probability, 22C-154 Introduction to Mathematical Statistics, 22C-154B Actuarial Principles of Life Insurance, 22C-167-182 Actuarial Theory I-II, 22C-175 Numerical Analysis for Actuarial Sciences, and a course in operations research.

Additional courses of direct professional interest to actuaries include 22C-153 Demography and Life Table Construction, 22C-184 Risk Theory, and 22C-185 Theory of Pension Funding.

Students are encouraged to take at least one course in computer science and a substantial portion of courses from the College of Business Administration. If a student in need to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics

All students interested in applied mathematics should take the sequence 22M-25-26 Calculus I-II or 22M-45-46 Accelerated Calculus I-II, 22M-27 Introduction to Linear Algebra, and 22M-28 Calculus III or the engineering mathematics sequence.


Other general courses that may be of interest are 22M-56 Elements of Group Theory, 22M-53 Fundamental Properties of Spaces and Functions, 22M-100-110 The Elements of Group Theory, 22M-114 Introduction to Analysis II, 22M-126 Elementary Theory of Numbers, and 22M-127 Matrix Theory.

Students in applied mathematics should be familiar with computer programming.
Applied Mathematical Sciences\n\n**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 22CM67 Introduction to Programming with Pascal.

**Minor**

The minor requires a minimum of 15 semester hours of credit. At least 12 of these semester hours must be earned in upper level course work at The University of Iowa. All students are required to take a year of calculus. The courses designated as upper level for the purposes of satisfying the requirements for a minor in the Division of Mathematical Sciences must have been approved as satisfying the upper level requirement for a minor in the Division of Mathematical Sciences.

Students majoring in computer science, statistics and actuarial science may not use the courses selected to satisfy the minor field requirement. Further information on approved courses can be obtained from the divisions office.

**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 advisor and the associate dean of the College of Business Administration prior to the senior year concerning business courses that should be included in the undergraduate program.

**Applied Mathematical Sciences**

Clair Herbert W. Hedrick
Faculty, emeritus (Mathematics),
Courses
22A.077 Seminar in Applied Mathematical Sciences
Prerequisite: course of instruction.
22A.099 Reading and Research
Prerequisite: consent of instructor.

Computer Science
Chair Arthur C. Fleck
Professors: Donald A. Alton, Donald L. Ephry, Arthur C. Fleck
Associate professors: Robert J. Barnes, Steven C. Lerman
Assistant professors: Marc Armstrong (Gophy), David M. Cohen, Ray Ford, Douglas W. Axe, Joseph K. Kearney, Roger K. Shultz
Lecturers: William F. Decker
Degrees offered: B.A., B.S., M.S., Ph.D.

Undergraduate Programs
Pre-Computer Science
Entering students who want to major in computer science must enroll in the department before the beginning of the fall term. All students must have completed the following courses before entering the department:

1. Calculus I
2. Calculus II
3. Linear Algebra
4. Introduction to Computer Science

Bachelor of Science
Students who complete the computer science requirements for the B.A. degree must complete at least one additional course in computer science before graduation. (This course may be taken during the senior year.)
22C:15 Software Engineering
22C:16 Operating Systems and Concurrent Programming
22C:17 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:123 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:128 Computer Networks
22C:179 Computer Communications
22C:198 Individual Programming Projects

Mathematics courses
22M:99 Elements of Group Theory
22M:105 Fundamental Properties of Spaces and Functions
22M:106 Fundamental Concepts of Geometry

Statistical courses
22S:55 Probability and Statistics for the Engineering and Physical Sciences
22S:102 Probability and Statistics
22S:153 Introduction to Probability

Those courses cannot be taken pass-no-pass. Students with certain special elective program may petition for additional courses to be accepted for this requirement.

Honors
Any student completing a cumulative grade-point average of 3.5 or better may join the College of Liberal Arts Honor Program. Interested students should contact the Honors Program office in the Main House Honors Center. To graduate with honors, students must complete between 4 and 6 semester hours of 22C:99 Honors in Computer Science and submit an acceptable honors thesis. To take 22C:99, students must have the consent of a computer science faculty member. The faculty member will inform the student of 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 will be responsible for finding a faculty member willing to supervise their honors project.

See the Computer Science Undergraduate Handbook for more details.

Electives
For the B.A. or B.S. degree, students must take 11 to 20 semester hours of electives in a field with potential computing application, such as business, engineering, physics, or other field in which students plan to apply the computer science degree. These courses must be approved by the student's computer science advisor beforehand and cannot be taken pass-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:8 Programming with Objective C, and/or any 22C computer science courses numbered higher than 22C:18, except those numbered 22C:100 to 22C:105. For purposes of the minor only, the courses listed here, other than 22C:96, are considered lower 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
A 22C:602 22C:122 course at 3 s.h.
Three additional graduate level 22C courses

Approved courses outside of computer science

Total

Outside courses must be selected to support the student's career objectives and must be approved by the student's advisor. The courses must broaden a student's background through study of a new area or extend a student's earlier work outside of computer science. Computer science courses should be selected according to the student's special area interests but also should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included. M.S. candidates may elect to write a thesis, and with their advisor's consent may apply up to 8 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S. degree. The M.S. final examination consists of either an oral defense of the thesis or a written examination that assumes completion of 22C:116 Operating Systems and Concurrent Programming, 22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Language Foundations, and 22C:135 Introduction to Computation Theory. The written examination attempts to confront the student with the coursework and as well as the major topics in the individual courses. Students should consult the Computer Science Graduate Handbook for further information.

Applicants for admission to the M.S. program in computer science usually are required to have background equivalent to a B.A. or B.S. in computer science. In special cases, a student lacking one or more of the undergraduate requirements may be admitted to a graduate program. In such cases the student is required to complete these courses prior to admission to graduate courses.

Doctor of Philosophy
Doctoral students are expected to complete 80 to 90 semester hours of graduate work, including a thesis. The student must have a master's degree when beginning the Ph.D. program, and need not acquire one. Course requirements or equivalent proficiency for the doctorate include:
22C:116 Operating Systems and Concurrent Programming
22C:122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:125 Data: Abstractions, Types, and Structures
22C:135 Introduction to Computation Theory
A 22C:602 22C:122 course at 3 s.h.
Three additional graduate level 22C courses

Approved courses outside of computer science

Total

Outside courses must be selected to support the student's career objectives and must be approved by the student's advisor. The courses must broaden a student's background through study of a new area or extend a student's earlier work outside of computer science. Computer science courses should be selected according to the student's special area interests but also should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included. M.S. candidates may elect to write a thesis, and with their advisor's consent may apply up to 8 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S. degree. The M.S. final examination consists of either an oral defense of the thesis or a written examination that assumes completion of 22C:116 Operating Systems
The candidate must write a thesis and pass a final examination.

The candidate is required to demonstrate reading proficiency in French, German, or Russian either by passing a language test administered by the appropriate foreign language department or by otherwise satisfying the Mathematics Department by earning a grade of "B" or better in the second semester of a sequence offered by the non-native foreign language department. This demonstration must take place after the student has enrolled in graduate school.

For information about the Ph.D. program in mathematics education, consult the department's student handbook and the Office of Student Affairs, available from the College of Education.

The Department of Mathematics also cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences.

Courses

Undergraduate: Lower Division

These courses are not open to graduate students except by special arrangement with the department chair.

22:100 Cooperative Education Internship 6 s.h.

22:110 Basic Algebra I 3 s.h.

Permutations, combinations, manipulations of algebraic expressions, and manipulation of simple algebraic expressions. Emphasis on elementary properties of numbers, variables, and propositional logic. No credit if passed with a grade of "B" or better in 22:100 Cooperative Education Internship. Course credit will not count toward graduation for students who enroll at the UI for the first time after July 1965.

22:130 General Algebra 3 s.h.

Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. May be used for partial satisfaction of the mathematics General Education Requirement. Course credit will not count toward graduation for students who enroll at the UI for the first time after July 1965. Prerequisite: 22:100 or one year of high school algebra.

22:140 Basic Geometry 3 s.h.

Angles, triangles, polygons, circles, Pythagorean theorem, coordinate geometry. May be used for partial satisfaction of the mathematics General Education Requirement. Course credit will not count toward graduation for students who enroll at the UI for the first time after July 1965.

22:150 Advanced Geometry 3 s.h.

Trigonometric functions, solutions of right and oblique triangles, complex numbers, matrixes, polynomial equations, curves, area-probability. May be used for partial satisfaction of the mathematics General Education Requirement. Course credit will not count toward graduation for students who enroll at the UI for the first time after July 1965.

22:160 Elementary Mathematics 3 s.h.

Introduction to logic, set theory, linear equations and inequalities, elementary number theory, probability, and statistical inference. Not acceptable as an undergraduate mathematical science course for any major.

22:161 Basic Calculus 3 s.h.

Introduction to logic, set theory, linear equations and inequalities, elementary number theory, probability, and statistical inference. Not acceptable as an undergraduate mathematical science course for any major.

22:162 Elementary Mathematics for the Biological Sciences 3 s.h.

Introduction to logic, set theory, linear equations and inequalities, elementary number theory, probability, and statistical inference. Not acceptable as an undergraduate mathematical science course for any major.
220:33 Calculus for the Biological Sciences 4 cr.
Differentiable and integral calculus, topics from differential equations, and applications on life sciences. Prerequisites: Math 1111, or permission of instructor. 2 cr. in the department of the biological sciences.

220:17 Quantitative Methods II 4 cr.
Quantitative Methods for Social Problems and Decision Making, an introduction to quantitative research and statistical analysis, overview of linear regression, analysis of variance, and multiple regression. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the social sciences.

220:10 Elementary Functions 4 cr.
Linear and polynomial functions, properties and graphs of exponential, logarithmic, and trigonometric functions, with applications to the sciences. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:15 Calculus I 4 cr.
Limits and derivatives, applications of differentiation, the definite integral, area under curves, and applications of integration. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:25 Calculus II 4 cr.
Limits and derivatives, applications of differentiation, the definite integral, area under curves, and applications of integration. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:27 Introduction to Linear Algebra 4 cr.
The study of n-dimensional vector spaces and linear transformations, including eigenvalues, eigenvectors, and diagonalization. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:20 Calculus III 4 cr.
Multivariable calculus, vector calculus, limits and continuity, partial derivatives, double and triple integrals, vector fields, line and surface integrals. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:35 Computer Lab for Calculus I 1 cr.
Use of the computer as an aide to understanding the concepts and techniques of calculus and linear algebra. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:30 Calculus for Computer Scientists I 4 cr.
Use of the computer as an aide to understanding the concepts and techniques of calculus and linear algebra. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:32 Engineering Calculus I 4 cr.
One- and two-variable calculus, including applications of differentiation and integration, and applications to life science. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:36 Engineering Calculus II 4 cr.
Further applications of single and multiple variable calculus, with applications to the sciences. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:50 Engineering Calculus with laboratory 4 cr.
Vector calculus, including vector equations of lines and planes, differentiation of functions of several variables, Taylor's formula, max-min, multiple integrals, conditions, maxima and minima, vector fields. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:53 Differential Equations for Engineers 4 cr.
Methods of solution of first-order differential equations, higher-order linear differential equations, and systems of linear differential equations including Laplace transforms, application of ordinary differential equations and first-order differential equations, applications of linear differential equations. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:40 Matrices Algebra I 4 cr.
Operations except by exception of matrices, and their solution by reduction, determinants, matrices, operations, and applications. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:43 Matrices Algebra II 4 cr.
Operations except by exception of matrices, and their solution by reduction, determinants, matrices, operations, and applications. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:50 Vector Calculus for Engineers 4 cr.
Vector calculus, including vector equations of lines and planes, differentiation of functions of several variables, Taylor's formula, max-min, multiple integrals, conditions, maxima and minima, vector fields. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:45 Accelerated Calculus I 4 cr.
Differential and integral calculus starting at the beginning of the school year and ending at the end of the semester. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:46 Accelerated Calculus II 4 cr.
Further applications of single and multiple variable calculus, with applications to the sciences. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

Elementary Topics of General Interest
These courses are not open to graduate students.

220:54 Elements of Group Theory 3 cr.
An introduction to abstract algebra, including groups, rings, and fields. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:55 Fundamental Properties of Spaces 3 cr.
Elementary topological and analytic properties of Euclidean spaces, with applications to function theory. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:70 Foundations of Geometry 3 cr.
Axiomatic development of a common language for Euclidean and non-Euclidean geometries, construction of models, and development of geometric intuition and reasoning. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:71 Elementary Non-Euclidean Analysis 3 cr.
Axiomatic development of a common language for Euclidean and non-Euclidean geometries, construction of models, and development of geometric intuition and reasoning. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

An introduction to the theory of algorithms, including complexity analysis, integer arithmetic, and non-linear optimization. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:83 Geometry for Elementary Teachers 3 cr.
A study of planes, lines, and planes of measurement, properties of geometric objects, angles, triangles, quadrilaterals, circles, polygons, and concepts of transformations and symmetries. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

Undergraduate: Upper Division

220:10 Introduction to Differential Equations 3 cr.
Methods of solution of first-order differential equations, higher-order linear differential equations, and systems of linear differential equations including Laplace transforms, application of ordinary differential equations and first-order differential equations, applications of linear differential equations. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:94 Introduction to Linear Algebra 3 cr.
Matrices, linear transformations, determinants, linear independence, characteristic equations, and applications to the sciences. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:50 History of Mathematics 3 cr.
Special topics in the history of development of mathematics. Not for graduate mathematics credit. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:80 Classical Analysis I 3 cr.
Mathematical induction and power series, sequences and series, limits, continuity, and differentiation. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:30 Abstract Algebra I 3 cr.
Groups and rings, homomorphisms, factor groups, factor rings, unique factorization domains, and applications. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:31 Abstract Algebra II 3 cr.
More advanced topics in groups and rings, including isomorphisms, factor groups, and factor rings. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:85 Foundations of Set Theory 3 cr.
Axiomatic set theory, cardinal and ordinal numbers, transfinite induction, and the nature of mathematical existence. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.

220:48 Foundations of Logic 3 cr.
A study of the fundamentals of logic, including propositional and predicate logic, proof techniques, and applications to the sciences. Prerequisites: Math 120 or Math 121, or permission of instructor. 2 cr. in the department of the sciences.
Graduate Programs

Master of Science

Each M.S. candidate has a committee of four members, which is responsible for recommending action on the candidate's degree. For thesis programs, the committee's recommendation usually is based on two written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation usually is based on an oral defense of the thesis, although it may be based on a single written examination over the topics covered in the candidate's program of study.

Students who choose to earn the M.S. degree with thesis may earn up to 6 semester hours of credit for thesis preparation. Specific course requirements for the M.S. programs are given below. The minimum grade-point average required for each of these programs is 2.75.

Actuarial Science With or Without Thesis

225.153 Introduction to Probability
225.154 Introduction to Mathematical Statistics
225.152 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 225.125-126 at another institution may waive the requirement only if they have passed part two of the examinations 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
225.05 Introduction to Discrete Probability Models
225.156 Analysis of Stochastic Processes
At least two of these:
225.064-085 Theory of Probability I-II

Applied Statistic Without Thesis

225.153 Introduction to Probability
225.154 Introduction to Mathematical Statistics
225.186 Analysis and Design of Experiments I
225.187 Regression Analysis
225.173 Data Analysis
At least two of the following:
225.156 Applied Time Series Analysis
225.187 Applications of Multivariate Statistical Techniques
225.188 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 adviser. With the adviser's approval, courses in other fields related to the thesis may be substituted.

Experience in a computer language such as FORTRAN is required. If students satisfy the requirements by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The typical thesis is a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a new statistical method. It generally requires 3 semester
Doctor of Philosophy

To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete:

223:211 Analysis II
223:212 Regression Analysis
223:216 Analysis and Design of Experiments I
223:237 Introduction to Stochastic Processes
223:242 Data Analysis
223:249-301 Theory of Statistics III
223:252 Advanced Regression
223:255 Linear Models
223:264 Theory of Probability I

At least 2 semester hours of any combination of the following:
223:291 Seminar: Mathematical Statistics
223:293 Seminar: Probability

At least one of the following:
223:156 Applied Time Series Analysis
223:161 Application of Multivariate Statistical Techniques
223:164 Analysis and Design of Experiments II

At least one of the following:
223:220 Analysis of Categorical Data
223:230 Introduction to the Theory of Nonparametric Statistics

And at least two of the following:
223:254 Advanced Inference II
223:265 Theory of Probability II

Students must achieve at least a 3.5 grade-point average in all these courses to satisfy the above requirements.

Well-prepared students entering with a B.S. degree require three years of course work to complete the doctoral program; they take 223:201, 223:202, 223:205, and 223:201 in the first year. Less well-prepared students need to take 223:151, 223:150, and 223:111 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 223:191 Individual Study, 223:197 Readings in Statistics and/or Actuarial Science, or 223:295 Reading Research.

During the graduate programs, students may take course work or seminars in other departments to achieve certain auxiliary goals of the doctoral degree in statistics to attain an area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.

Students are required to include in their programs a component that involves experience in either teaching or statistical consulting.

Students who expect to 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 223:135, 223:154, 223:155, 223:201. Study guides are available from the department. Students who are unsuccessful in their first attempt may repeat the qualifying examination no more than once.

Students take a comprehensive examination after completing most of the course work in their approved plan of study, typically during the third year.

The comprehensive examination consists of a written core examination on statistical inference, linear models, and probability. These topics are generally covered in 223:204, 223:205, 223:206, and 223:204. This is followed by an individualized examination on a topic selected by the candidate and his/her committee. The purpose of the individualized examination is to permit the student to demonstrate an area of strength; the format is that of the portion of the student's committee's study guide. Core guides for the core examination 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 is not of high quality may be approved by the department chair.

Special Features

Because statisticians often are trained with other scientists in research projects, it is important that students with experience in group efforts. The department tries to provide this expertise 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, students participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in these research centers, students in other departments, the center also involves in larger research projects and proposal writing.

Courses

Primarily for Undergraduates

Students may not receive credit for a Department of Statistics and Actuarial Science course numbered below 100 after receiving credit for a numbered above 100. Students may receive credit in only one of the following: 572.92, 223.25, 223.25, 223.152.

223:25 Statistics and Actuarial Science

b. An introduction to probability and statistics, basic probability concepts, descriptive statistics, sampling distributions, and the central limit theorem. Credit given only once toward graduation. Credit given toward the Mathematics major.

223:25b Qualitative Methods II

b. An introduction to statistical inference, elementary probability, estimation and testing, chi-square tests, regression.

223:25c Elementary Statistics and Inference

b. Graphing techniques for presenting data, interpretation of statistical logic of experimental design, sampling distribution models, estimation and tests of significance, correlation, regression and prediction. Prerequisites 223:152 or equivalent. Same as 17:25c.

223:25h Probability and Statistics for the Engineering and Physical Sciences

b. Probability, random variables, expectation, cumulative and probability distribution functions, descriptive statistics, joint and conditional probabilities, independence, regression, design of experiments, including factorial and fractional factorial designs. Prerequisites 223:152 or equivalent.

For Undergraduates and Graduates

223:250 Cooperative Education Internship

223:25b Biostatistics

b. Principles and methodology of study design and statistical analysis. Emphasis on the role of statistics in medical and health care. Prerequisites 223:151 or equivalent. Same as 223:151.

223:25c Biostatistics

b. Principles and methodology of study design and statistical analysis. Emphasis on the role of statistics in medical and health care. Prerequisites 223:151 or equivalent. Same as 223:151.

223:25h Probability and Statistics

b. Finite and general probability models, random variables, expectations, probability distributions, continuous distributions, estimation and hypothesis testing, regression. Prerequisites 223:154 or 223:156.

223:25b Biostatistics

b. Elements of basic probability and mathematical concepts necessary for the study of science. Emphasis on survey sampling, probability distributions, estimation, hypothesis testing, and regression analysis. Prerequisites 223:151 or equivalent. Same as 10:250. Same as 10:250.

223:25b Applied Statistical Methods and

b. Applied statistical methods for research and applications in research and applied fields. Prerequisites 223:152 or equivalent.

223:25b Quality Control and Engineering

b. Principles and methods of quality control.

223:25h Regression Statistics

Microbiology

Chad L. Opdyke; B.S., M.S., Ph.D.

Microbiology is the branch of biology dealing with the smallest living things—bacteria, fungi, algae, protozoa, and viruses. It is closely related to immunology in the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant fraction of contemporary biochemical research employs microbiological and immunological methods.

Some research areas in which both practical and theoretical advances are occurring include: the study and evolution of microbial species pathogenic to animals, plants, and man, the use of recombinant DNA methods to analyze basic biological processes and generate valuable products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilizing the biosphere by recycling and detoxifying waste products; and the genetics and regulation of the immune response, including selection and culture of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

Analytical microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an understanding of the life sciences. For students wishing to specialize in 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 police and university teaching, with greater responsibilities and correspondingly higher salaries.

Undergraduate Program

Bachelor of Science

An undergraduate student majoring in microbiology at The University of Iowa must meet General Education Requirements of the College of Liberal Arts. Students who become microbiology majors before the semester of registration must complete a minimum of 14 semester hours of microbiology to obtain a B.S. degree. Students who become microbiology majors after spring 1984 must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. In both cases, no more than 2 semester hours of 690, 691, or 692, and 1 semester hour of 693-693 Seminar in Microbiology may count toward this requirement.

Students who wish to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biology, 30 semester hours of which must be in microbiology. Certification is required for employment or advancement in some areas (primarily in diagnostic microbiology).

Students are permitted to take microbiology courses more advanced than 610-637 General Microbiology only if they receive a "C" or above in 610-637. 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 become microbiology majors prior to summer 1984 include the following:

1. Principles of Chemistry I 3 s.h.
2. Principles of Chemistry II 3 s.h.
3. Principles of Chemistry Lab I 2 s.h.
4. Elementary Quantitative Analysis 4 s.h.
5. Organic Chemistry I 5 s.h.
6. Organic Chemistry II 5 s.h.
7. Organic Chemistry Laboratory 5 s.h.
8. Chemistry of Biological Materials 3 s.h.
9. Metabolism 3 s.h.

222-315 Mathematics for the Biological Sciences 4 s.h.
222-199 Elementary Functions 3 s.h.
222-115-116 College Physics 8 s.h.
373 Principles of Animal Biology 5 s.h.

The course requirements for students who become microbiology majors after spring 1984 are the same as above, except that one semester of calculus (222-16, 222-25, or 222-35) must be taken rather than 222-15 or 222-16.

Courses that are recommended include the following:

8W-8X Expository Writing 3 s.h.
8W-8X Writing for the Sciences 3 s.h.
222-142 Computers with FORTRAN 3 s.h.
222-16 Introduction to Programming with Pascal 4 s.h.
222-17 Programming Techniques and Data Structures 3 s.h.

Graduate Programs, Faculty Roster, Courses

See "Microbiology" in the "College of Medicine" section of the Catalog

Military Science (Army ROTC)

Major: Lieutenant Colonel Roger W. Lawson
Professor: Roger W. Lawson (Lieutenant Colonel, U.S. Army Reserve)

Assistant professor: Edith W. Anderson (Major, U.S. Army Reserve), Michael J. Hall (Senior, U.S. Army Reserve)

Instructor: William S. Bailey (Major, U.S. Army Reserve)

The Department of Military Science is the second longest established Reserve Officers Training Corps (ROTC) program at The University of Iowa. Participation in the program is voluntary.

Courses in the program carry credit applicable toward a degree.

The ROTC Basic Course for freshmen and sophomores provides academic instruction in the fundamentals of leadership and management plus an introduction to the military role in American society and current military organization and capabilities. Military history is highlighted in tracing the development of military policy and the role of the U.S. military in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practical instruction in developing individual leadership skills is emphasized. Between the junior and senior years, students attend a six-week, paid, advanced training camp at Fort Lewis, Washington. Selected students also may participate in active duty training programs such as Ranger School, Air Assault School, National War College, and Command and Staff College.

Students who successfully complete the Basic 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 U.S. Army Reserve near their home. Those choosing active duty serve a minimum of three years.

Students who have not taken the basic course may qualify for the advanced course.
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 intercollegiate military skills competition. Cadets compete for individual, local, and national awards for leadership, academic achievement, athletics, and military proficiency. The department sponsors military-oriented ceremonial and social activities throughout the year, including the annual military ball, a formal dinner called Cadet Corps Dinning, and a 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 radios, in practical leadership exercises and in support of field training. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineers 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 may participate in the Student Leadership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $2,600 per year in addition to the basic B.D. and serve as officer trainees in guard and reserve units in the local area while attending the University.

Courses

23.00 Introduction to the Military

A synopsis approach to military organizations with emphasis on the U.S. Army, division level and above. Includes basic organization of the military services, the military justice system, military installations, branches of the armed forces, and the relationship of the army, officer and non-commissioned officer duties and responsibilities, and an introduction to reporting and rifle marksmanship.

23.05 Foundations of Military Organizations

Analysis of the role of the military in American society and its development along democratic, conservative, and military lines. Basic theory of the NATO/Warsaw Pact, the military establishment, present defense programs, current issues, and an introduction to leadership and management problems to be developed in better course offerings.

23.06 Strategic and Military Tactical Analysis

Theory and application of military tactical exercises. Survey of American military history since the American Revolution with respect to the principles of war as delineated by Clausewitz.

23.07 Strategic and Military Tactical Analysis

Introduction to small unit tactical military leadership responsibilities, with emphasis on individual and team techniques in the use and effective employment of small teams and small tactical leadership of small groups.

23.08 Fundamentals of Military Organization and Operation

A comprehensive course covering the essential elements of the organization (23.05), the tactical mission (23.06), and the leadership responsibilities (23.07). Designed to provide leadership-based training for all cadets in the advanced course.

23.11 Principles of Military Operations

Fundamentals of military planning and preparation of operations with particular emphasis on joint, combined operations and the use of all branches of the armed forces in the conduct of military operations. Emphasis is placed on the development of effective plans and operations through the use of commonly utilized by an infantry company in a tactical environment to include defensive operations, offense, reconnaissance, fire support, and amphibious operations; includes a weekday field exercise course. Prerequisites: basic course or equivalent training. 23.19 Law and Organizations

Emphasis on management and leadership in large organizations, including leadership of military law and the military justice system as it applies to a non-commissioned, comprehensive review of the requirements of a profession and the necessity for professional ethics, effective management of research and organizational behavior problems are highlighted. Prerequisites: 23.19 and 23.11.

23.21 Readings in Contemporary Military Issues

A summary of the military role in world affairs, history, and current events. Emphasis is placed on the role of the military in the world today. Topics include progress in the military and society. Prerequisites: 23.10 and 23.11.

23.22 Readings in Contemporary Military Issues

A historical analysis of the role of the military in world affairs, with emphasis on the role of the military in the world today. Topics include progress in the military and society. To be determined by the University.
Music

Director: Marilyn Sovern

Assistant Director: John D. Killeen


Associate Professors: Martha Lyons, Albert T. Luger, Thomas Muen, Frank Parosh, Charles B. Slattery, Harold R. Swanson, Marcus Trowbridge, Thomas Turner, Hune Youngnus

Assistants: Richard J. Brooker, Delores Bruch, Joseph Gomis, Numa Oviedo, Daniel Short, Robert Trotter, Raymond Vahabzadeh, Augusta Abert, Paula Bolme, Michael Eckert, Kate Glister, George Haas, Neutra Murphy Mead, Kenneth Phillips, Eric Zivic

Adjunct professors: Roger Matter, Stephen F. Turner

Instructor: Max Levis

Students are offered B.A., B.M., M.F.A., C.M.A., Ph.D.

A primary element in a fine-arts community of international repute, The University of Iowa School of Music has long been recognized as one of the finest university-based schools of music in the United States.

The school’s on-campus enrollment of 600 students majoring in music is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student’s development.

The faculty consists of highly trained artist-teachers in each area of specialization. Faculty members in residence include the Strobel String Quartet, Iowa Woodwind Quintet, Iowa Brass Quintet, Percussion Quartet, Vocal Quartet, and the Baroque Players. Private lessons with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

At the undergraduate level, the school’s curriculum offers a full array of academic programs in the humanities, the natural sciences and engineering. The curriculum is designed primarily as preparation for teaching in secondary schools, colleges, and universities, and for careers in performance.

The school is a charter member of the National Association of Schools of Music.

Undergraduate Programs

The school offers the Bachelor of Arts and the Bachelor of Music. Curriculums are the same for both, except that candidates for the B.A. may, count not more than 50 semester hours of course work in music toward the degree, for the B.M. in one year of college-level study, while the requirement for the B.A. is two years. Areas of concentration offered in both programs are performance, composition, critical history, and jazz studies. Programs leading to certification in music education are available in music education and music therapy.

General Requirements

All undergraduate enrollments require School of Music approval. Entering undergraduate students who plan to major in music are expected to audition either in person or by tape recording in advance of registration. Transfer students also must take the above examinations in music theory (see "Graduate Programs" below). Students with deficiencies in theory must register for 215I Review Theory. All baccalaureate candidates in music must satisfy all College of Liberal Arts General Education Requirements except that B.M. candidates are exempt from the historical perspectives requirement. The following School of Music course requirements also are required:

21-2 Literature and Theory I and II 3.0
21-5-Aural Skills I and II 3.0
21-5-B Literature and Theory III and IV 3.0
21-7-Aural Skills III and IV 3.0
21-9 History of Music I and II 3.0
21-21 Group Instruction in Piano I or II 1.0 or the successful completion of proficiency exams I and II 2.0
21-107 Techniques of Conducting 2.0
Recital Attendance (required of wind, percussion, and strings majors for seven semesters) 1.0
21-144 Senior Recital 1.0
Four semester hours of electives from the following:
21-15 Undergraduate Composition 3.0
21-17 Arranging for Band 3.0
21-101 Jazz Improvisation I 1.0
21-102 Jazz Improvisation II 1.0
21-157 Orchestration 3.0
21-15-30 Jazz Ensemble 3.0
21-147 Tonal Forms 3.0
21-148 Analysis of Music Literature, 1600-1750 3.0
21-150 Analysis of Music Literature, 1750-1825 3.0
21-158 Analysis of Music Literature, 1820-1940 3.0
21-153 Analysis of Music Literature, 1940-1965 3.0
21-152 Analysis of Music Literature, Special Topics 3.0
21-153 Keyboard Harmony 3.0
21-222 Gregorian Chant 3.0
21-215 figured Bass 3.0
21-215 figured Bass 3.0
Four years of applied music

Students also must participate in a major ensemble each semester of residence (minimum total of 8 semester hours). During the senior year, students must be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String majors participate in University Orchesta and in String Section or Chamber Orchesta. Keyboard majors may participate by accompanying for major ensemble participation for two semesters during their junior and/or senior years, with the consent of their advisers. Any requests for adjustment of this requirement should be submitted in writing to a review committee consisting of the ensemble directors involved, the adviser, the major teacher, and a representative from the director’s office. The committee meets regularly at the end of each early registration period.
Music History Major
In addition to the general requirements for the B.M. degree, a list of course requirements for the music history major is available in the music office.

A senior thesis replaces the 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, vocal music, vocal music, and music therapy. In addition to the T.A. or B.M. requirements in music and liberal arts, certification to teach music in Illinois requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below.

**String Majors**

*Instructor in performance* 2 s.h.
(Violin and viola majors take one year of 25.23 (cello) and bass majors take one year of 25.23 (Violin))

25.10 Cello Strings 1-2 s.h.
(Violins take viola and bass; violins take viola and bass; viola take viola and bass; bassists take viola and cello.)

25.14 Instrumental Techniques 2 s.h.
(normally clarinet and cornet)

25.10 Technique of Conducting 2 s.h.

25.10 Instrumental Conducting 1 s.h.

25.10 String Methods and Materials 4 s.h.

**7E144 Methods and Materials:**

Elementary School Instrumental Music 2 s.h.

7E191 Observation and Laboratory Practice in the Secondary School 6 s.h.

7E192 Laboratory Practice in the Elementary School 6 s.h.

7E193 Seminar: Curriculum and Student Teaching 1 s.h.

**Brass, Woodwind, or Percussion Majors**

Brass, woodwind, or percussion majors in music education participate in a concert band each semester and in marching band for two 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 adviser and the director of bands. Courses required:

7E143 Technique of Conducting 8 s.h.

7E144 Instructional Music 6 s.h.

7E191 Observation and Laboratory Practice in the Secondary School 6 s.h.

7E192 Laboratory Practice in the Elementary School 6 s.h.

7E193 Seminar: Curriculum and Student Teaching 1 s.h.

Vocal and Keyboard Majors

Vocal performance majors should consult the music office for recommendations.

7E147 Choral Methods 3 s.h.

7E148 Choral Conducting and Literature 2 s.h.

25.115-116 fishes for Singers I and II 4 s.h.

7E149 Methods and Materials: Elementary School General Music 3 s.h.

7E144 Methods and Materials: Secondary School General Music 3 s.h.

7E191 Observation and Laboratory Practice in the Secondary School 6 s.h.

7E192 Laboratory Practice in the Elementary School 6 s.h.

7E193 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard majors preparing for music teacher certification must pass the competency exam of 25.71-72 Group instruction in Piano III-I. Keyboard majors must take an additional 4-credit hour of piano and an additional 4-credit hour of theory. Piano majors must take additional piano and additional voice in the minor area.

**Keyboards Majors (Novice)**

Keyboard majors who elect to test in the non-vocal area must complete the requirements in either brass/woodwind/percussion or string area and pass the theory exam of 25.71-72 Group instruction in Piano III-I.

**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:

11.111 Beginning Folk Guitar 2 s.h.

11.145 Methods and Materials: Elementary School General Music 3 s.h.

11.192 Laboratory Practice in the Elementary School 2 s.h.

Applied music Ensemble (chorus, band, or orchestra) 2 s.h.

Two of the following:

21.1 Literature and Theory I 3 s.h.

25.1 Literature and Theory II 3 s.h.

25.10 Fundamentals of Music 3 s.h.

25.13 Masterpieces of Music I 3 s.h.

25.14 Masterpieces of Music II 3 s.h.

Students who want to complete an area of specialization in music without teacher certification must complete the additional requirements for 7E192 with the adviser's approval.

**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 music education faculty advisor in addition to the regular faculty adviser.

Senior recital and recital attendance requirements are the same as for the B.M. degree. Course requirements are the same as those for the 1, 2, and 4-credit hour of additional recital hours of jazz courses for performance majors, or an additional 16 semester hours for those in the music education certification program. Students in the jazz studies emphasis program must attend at least 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 clinical 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 for the major in music education are available in the music education office.

Course requirements for the major in music therapy are:

11.14 Music Therapy Practicum I 1-3 s.h.

11.14 Music Therapy Practicum II 1-3 s.h.

11.14 Music Therapy Practicum III 1-3 s.h.

11.14 Music Therapy Practicum IV 1-3 s.h.

11.14 Music Therapy Practicum V 1-3 s.h.

11.14 Music Therapy Practicum VI 1-3 s.h.

11.14 Music Therapy Practicum VII 1-3 s.h.

11.14 Music Therapy Practicum VIII 1-3 s.h.

11.14 Music Therapy Practicum IX 1-3 s.h.

11.14 Music Therapy Practicum X 1-3 s.h.

11.14 Music Therapy Practicum XI 1-3 s.h.

11.14 Music Therapy Practicum XII 1-3 s.h.

11.14 Music Therapy Practicum XIII 1-3 s.h.

11.14 Music Therapy Practicum XIV 1-3 s.h.

11.14 Music Therapy Practicum XV 1-3 s.h.

11.14 Music Therapy Practicum XVI 1-3 s.h.

11.14 Music Therapy Practicum XVII 1-3 s.h.

11.14 Music Therapy Practicum XVIII 1-3 s.h.

11.14 Music Therapy Practicum XIX 1-3 s.h.

11.14 Music Therapy Practicum XX 1-3 s.h.

11.14 Music Therapy Practicum XXI 1-3 s.h.

11.14 Music Therapy Practicum XXII 1-3 s.h.

11.14 Music Therapy Practicum XXIII 1-3 s.h.

11.14 Music Therapy Practicum XXIV 1-3 s.h.

11.14 Music Therapy Practicum XXV 1-3 s.h.

11.14 Music Therapy Practicum XXVI 1-3 s.h.

11.14 Music Therapy Practicum XXVII 1-3 s.h.

11.14 Music Therapy Practicum XXVIII 1-3 s.h.

11.14 Music Therapy Practicum XXIX 1-3 s.h.

11.14 Music Therapy Practicum XXX 1-3 s.h.

11.14 Music Therapy Practicum XXXI 1-3 s.h.

11.14 Music Therapy Practicum XXXII 1-3 s.h.

11.14 Music Therapy Practicum XXXIII 1-3 s.h.

11.14 Music Therapy Practicum XXXIV 1-3 s.h.

11.14 Music Therapy Practicum XXXV 1-3 s.h.

11.14 Music Therapy Practicum XXXVI 1-3 s.h.

11.14 Music Therapy Practicum XXXVII 1-3 s.h.

11.14 Music Therapy Practicum XXXVIII 1-3 s.h.

11.14 Music Therapy Practicum XXXIX 1-3 s.h.

11.14 Music Therapy Practicum XXXX 1-3 s.h.

11.14 Music Therapy Practicum XXXXI 1-3 s.h.

11.14 Music Therapy Practicum XXXXII 1-3 s.h.

11.14 Music Therapy Practicum XXXXIII 1-3 s.h.

11.14 Music Therapy Practicum XXXXIV 1-3 s.h.

11.14 Music Therapy Practicum XXXXV 1-3 s.h.

11.14 Music Therapy Practicum XXXXVI 1-3 s.h.

11.14 Music Therapy Practicum XXXXVII 1-3 s.h.

11.14 Music Therapy Practicum XXXXVIII 1-3 s.h.
Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, 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. 12 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 student describing the general content of these tests may be obtained from the director of the Office, School of Music. (For general graduate admission, degree, and examination requirements, see the "Graduate Program" section of the Catalog.)

Theory Pedagogy Minor

Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses:

- 25:140 Counterpoint Forms 3 s.h.
- 25:141 Total Forms (outside Phoenix course, except by advisor exam) 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:

- 25:140 Analysis of Music Literature 1900-1950 3 s.h.
- 25:150 Analysis of Music Literature 1950-Present 3 s.h.
- 25:150 Analysis of Music Literature Special Topics 3 s.h.
- 25:212 Gregorian Chant 3 s.h.
- 25:215 Fugue 3 s.h.
- 25:222 Variation Forms 3 s.h.

Master of Arts

The Master of Arts with thesis 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 courses must include the requirements listed below.

General

25:220 Introduction to Graduate Study in Music 2 s.h.

Music Theory

25:240 Introduction to Contemporary Analysis and Theory 3 s.h.

One elective from


25:11 Review Theory as determined by advisory exam.

Music History

25:301, 25:302 Advanced History and Literature of Music I or II or equivalent, or satisfactory advisory examination score.


Ensemble Participation

Students participate in a major ensemble each semester of residence (see previous list of the major ensembles). During the summer session, 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 major office. 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:

- Composition—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 at least two full-length recitals or programs (25:401 M.F.A. Thesis), for which a maximum of 8 semester hours of credit will be granted. The student must earn a Master of Arts degree, but all requirements for each degree—including two final examinations—must be met, 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 study sequence 25:146-152, or 25:212, 25:215, or 19:222, or equivalent
- One or more additional courses in the history of music chosen from those listed in the master's degree requirements;

25:705 Musical Acoustics or equivalent;

- Writing proficiency 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 adviser (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 adviser's discretion.

Doctor of Philosophy

Areas of concentration for the Ph.D. include composition, musicology, music education, music theory, and music literature.

The music literature program is designed for students who already have achieved a professional level of musical performance. The student is required to audit in his or her major performance area.

Information about specific admission and curricular requirements for each area is available from the director's office.

Doctor of Musical Arts

Requirements for the D.M.A. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a concerto performance with orchestra or other appropriate ensemble. Vocalists may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors will present two performances.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay.

Admission

Before students are considered for admission to a doctoral program, they must have submitted supporting materials to the indicated area of concentration, as follows:

- Composition—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

Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.

Music for Nonmajors

Courses particularly recommended for students who are not majoring in music but who have an unusual interest in it include 25:13-14 Masterpieces of Music; 25:15 (last eighteenth- and nineteenth-century composers); 25:50 Early Eighteenth- and Twentieth-Century Composers; the sequence 25:103-104 World Music I-II; for students interested in non-Western music and 25:10 Fundamentals of Music; 25:14 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 1990 with a grant from The Rockefeller Foundation, the center provides stipends for skilled metal workers, musicians who form a nucleus ensemble for the express 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 repertoire ensemble for the continued performance of new music.

Facilities

The University of Iowa Center for the Arts has one of the nation's finest facilities for teaching and performance in music. In addition to the auditorium, the Music Building includes 55 teaching studios, 22 recital rooms, a large library, two electronic music laboratories, ear training and listening laboratories with 50 listening posts, four large rehearsal halls, major solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with an estimated five microcomputers, eight practice and recital organs, and the 750-seat Clapp Recital Hall. Dashiel's, the student coffee shop, serves 2,000 people for concerts and 2,400 for opera and other stage productions. Resources of the Rita Benton Music Library include more than 54,000 volumes of music and books; some 1,000 titles in microfilm; over 14,000 sound recordings.
Music and Technology
See also Experimental Musical Studio I and II under "Comparisons."

23.214 Recording Techniques
Preparatory: instructor of instructor.

23.213 Art and Technology I
Preparatory: instructor of instructor.

23.212 Art and Technology II
Preparatory: instructor of instructor.

25.239 Seminar in Audio Recording
2.0 a.

25.248 Musical Acoustics
Same as 29.143.

Research and Literature

25.145 Seminar in Percussion Methods, Materials, Performance Practices
1.0 a.
Contemporary percussion literature and current styles, techniques, and methods of performance and composition. Preparation: consent of instructor.

25.144 Senior Research
1.0 a.

25.146 Senior Thesis
1.0 a.

25.190 Special Studies
4.0 a.

25.212 History of Organ Building and Design
2.0 a.
Development of organ design from the Middle Ages to present. Basic concepts of construction and maintenance. May be repeated. Not offered every year.

25.217 Literature I
2.0 a.

25.218 Literature II
2.0 a.

25.267 Literature III
2.0 a.

25.395 Organ Literature
3.0 a.

25.193 Musical Sound
1.0 a.
Prerequisites: consent of instructor.

25.192 Musical Sound II
1.0 a.
Prerequisites: consent of instructor.

25.191 Musical Sound I
1.0 a.
Prerequisites: consent of instructor.

25.190 Special Studies
4.0 a.

25.169 Advanced Choral Literature I
2.0 a.

25.168 Advanced Choral Literature II
2.0 a.

25.167 Advanced Choral Literature III
2.0 a.

25.166 Advanced Choral Literature IV
2.0 a.

25.043 Seminar in Choral Literature and Analysis I
1.0 a.

25.042 Seminar in Choral Literature and Analysis II
1.0 a.

25.041 Seminar in Choral Literature and Analysis III
1.0 a.

25.040 Seminar in Choral Literature and Analysis IV
1.0 a.

25.039 Seminar in Choral Literature and Analysis V
1.0 a.

25.038 Seminar in Choral Literature and Analysis VI
1.0 a.

15.190 Historical and Critical Debates in Music History
2.0 a.

15.191 Historical and Critical Debates in Music History II
2.0 a.
Nuclear Medicine Technology

See “Division of Associated Medical Sciences” in the “College of Medicine” section of the Catalog.

Philosophy

Faculty: Philip Connors

Professors: Introductory, Paulette Buchan; Richard Connors, Richard Fuerstenberg

Associate professors: James Duttinger, Edwin Taves

Assistant professors: Scott Macdonald, Phyllis Bailey

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

Undergraduate Program

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytical skills. A major in philosophy develops abilities useful for graduate or professional work in many fields, for example—and for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy.

Bachelor of Arts

The Bachelor of Arts degree requires at least 62 semester hours of credit in courses numbered from 2601 through 2619, and must include:

- 26105 Introduction to Symbolic Logic
- 26111 Ancient Philosophy
- 26114 Modern Philosophy: Descartes through Kant

The final 12 semester hours of philosophy courses used to complete these departmental requirements must be taken at The University of Iowa. Undergraduate majors in philosophy are excluded from four semester hours of the liberal arts General Education Requirement in historical perspectives.

In addition to prerequisites listed to individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of a major's undergraduate education. For further details consult the director of undergraduate studies.

Minor

In order to achieve a minor in philosophy, a student must take and pass a minimum of 12 credit hours in philosophy courses. Of these, a minimum of 6 credits must be in courses that are numbered above 260 and are taught in the Department of Philosophy at The University of Iowa. For further details consult the director of undergraduate studies.

Honor

The department administers an Honors Program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be registered in the College of Liberal Arts Honors Program, and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, a student must complete the regular requirements for an undergraduate major in philosophy with a grade-point average in the philosophy courses of at least 3.4, and must write an acceptable honors thesis on a significant topic in an area of philosophy of the student’s interest. For further details consult the director of undergraduate studies.

Graduate Programs

The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main areas in the graduate program are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts

The Master of Arts degree requires a minimum of 30 semester hours and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. Passing an oral final examination also is required. There is no foreign language requirement. For details consult the director of graduate studies.

Doctor of Philosophy

The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time the degree is completed. Candidacy for the doctoral program is determined by a vote of the entire faculty of the Department of Philosophy, usually after the student has completed three semesters of graduate study in residence.
Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. Also required is a senior comprehensive examination consisting of a dissertation area examination, a special area examination, and a prose passage 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

25.1 Problems of Moral Reasoning
A philosophical introduction to ethical thought with an emphasis on the applications for contemporary moral controversies.

25.22 Problems of Political Philosophy
Philosophical study of the good society and the status of authority in political life.

25.27 Philosophy and Human Nature
Philosophical and historical examination of recent theories of human nature, and its reflection in society, knowledge, art, and religion. May be taken before or after 25.24.

25.24 Philosophy and Human Nature
Philosophical and historical treatment of classical theories of human nature, contemporary considerations of self, identity, religion, science, and family. May be taken before or after 25.27.

25.26 Principles of Reasoning
An introduction to the logic of deductive and inductive inference.

25.25 Introduction to Philosophy
An introduction to the study of logic and to applications in philosophy.

25.23 Introduction to Philosophy
An introductory study of continental, analytic, and continental traditions.

For Undergraduates and Graduates

25.222 Introduction to Ethics
A systematic treatment to major ethical theories and duties to nature and the welfare of right conduct.

25.246 Introduction to Symbolic Logic
Basic ideas and techniques of modern logic.

25.256 Introduction to Philosophy of Science
Main issues in contemporary philosophy of science.

25.211 Analytic Philosophy
Main trends and major figures of modern philosophy such as Augustine and Kant.

25.114 Modern Philosophy: Descartes through Kant
Philosophical development of the seventeenth and eighteenth centuries.

25.117 Nineteenth-Century Philosophy
Main trends and major figures of nineteenth-century philosophy.

25.118 Twentieth-Century Philosophy
Main trends and major figures of twentieth-century analytic philosophy.

25.120 Political Philosophy
An introduction to major political thought. An introduction to the Latin American political thought, including those of Prust, Arendt, and Deleuze, the New Left or the Frankfurt School.

25.122 Aristotle
Major problems in philosophy of the art.

25.135 Philosophy of History
Major problems in philosophy of history.

25.134 Philosophy of Religion
Major problems in philosophy of religion. Same as 25.21.

25.135 Philosophy of Law
Same as 25.12.

25.136 Philosophy of Literature
Philosophical study of the foundations of literary art.

25.141 Existentialist Philosophy
Philosophical study of the thought of Kierkegaard, Nietzsche, Heidegger, and Sartre.

25.140 Philosophy East and West
A comparative analysis of ideas in Eastern and Western philosophy.

25.145 Buddhist Philosophy
An introduction to the major ideals of Buddhist philosophy.

25.142 Semantics
A systematic introduction to contemporary semiotic analysis.

25.151 Metaphysics
A systematic introduction to contemporary metaphysics. Same as 25.12.

25.152 Philosophy of Mind
History of philosophy of mind. Same as 25.12.

25.153 Ethics
History of ethics. Same as 25.12.

25.155 Epistemology
Selected problems in contemporary epistemology. Same as 25.12.

25.156 Philosophy of Language
Selected special contemporary philosophies of language. Same as 25.12.

Primary for Graduates

25.21 Mathematical Logic
A systematic treatment to major areas of logic including set theory, computability, model theory, and model theory of second order logic. Open to undergraduates with consent of instructor.

25.31 Philosophy of Science
Philosophical explanation and understanding of time, motion and relativity, in the context of special and general relativity. Open to undergraduates with consent of instructor.

25.41 Philosophy of Science
Philosophy of science in the context of special and general relativity. Open to undergraduates with consent of instructor.

25.45 Ethics
A systematic exposition to major ethical theories for the purpose of analyzing ethical judgments and moral principles. Open to undergraduates and to advanced undergraduates with consent of instructor.

25.51 Logic
Formal systems of modern logic are developed and applied to problems in logic, general semantics, and model theory. Open to undergraduates and to advanced undergraduates with consent of instructor.
More detailed descriptions of the undergraduate and graduate courses offered in a given semester or summer session are available at the Department of Philosophy main office, 269 English-Philosophy Building, shortly before early registration.

Physical Education and Dance

Chair: N. Peggy Burke

Program Coordinator: Margaret G. Fox, M. Clyde Scott

Graduate Program Coordinator: Judith N. Axel, Susan (Sandy) Green, Allysa A. Brown, N. Peggy Burke, Diane L. Gillis, Christine Hub Grant, Francisca Martinez, Josephine L. Shubik, Yvonne L. Buxton

Undergraduate Program Director: David Derker, Helen

Graduate Program Director: Susan Dinakar

Welcome to Instructors: Catherine M. Carcamo, Diane L. Chajek, Linda S. Cohn, Judith A. Dawenben, Carol Goder, Jerold N. Hassid, Kathy Jaret, Peter Kenney, Virginia Parrish, Sandra D. Stewart, Diane M. Thompson

Degrees offered: B.S., B.S. in 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 communications. It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Undergraduate Programs in Physical Education

Each undergraduate student in physical education selects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism, and broadcasting, fitness and health fields, sport and recreation, 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 designed to prepare students for graduate work in physical education. (See "Graduate Programs" for areas of specialization.)

Students who plan to teach must meet certification requirements (see the "College of Education" section of this Catalog), must maintain at least a 2.5 grade-point average, and must demonstrate competence for teaching and/or leadership roles. Students in the non-teaching major program must complete an internship assignment. A grade-point average of 2.3 is required before registering for the internship.

The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree. (Four semester hours of the General Education Requirements for natural science are waived for physical education majors.)

The programs are as follows:

Teacher Education Program

Physical Education Requirements

28.19 Orientation to Physical Education or Dance 0-4 s.h.
27.11 Orientation to Physical Education 0-4 s.h.
28.97 Advanced First Aid and CPR (or Red Cross Certification) 2 s.h.
28.98 Anatomy 3 s.h.
27.53 Human Anatomy 3 s.h.
28.90 Kinesiology 3 s.h.
27.107 Biomechanics of Physical Education 3 s.h.
28.92 Measurement 3 s.h.
28.106 Physiology of Exercise 3 s.h.
27.141 Exercise Physiology 3 s.h.
28.107 Physical Education for the Handicapped 2-3 s.h.
27.105 Physical Education for Special Students 3 s.h.
28.130 Administration of Physical Education and Athletics 2 s.h.
27.103 Administration and Curriculum in Physical Education 3 s.h.
28.142 Contemporary Issues of Health Education 3 s.h.

Skill Techniques Requirements. Physical Education Majors must complete the following requirements: basketball, volleyball, softball, field sports, intermediate level team sports, swimming, intermediate level individual activity, field and track, and intermediate level individual activity, and the teaching of dance and modern dance or jazz.

Peterson's 73:130.

Students must complete all courses in option A or B.

Option B: Dance Emphasis

28.114 Dance History Primitive Nineteenth Century 3 s.h.
28.115 Twentieth Century Dance 3 s.h.
28.173 Composition I 2 s.h.
28.174 Composition II 2 s.h.
28.259 Rhyming Analysis of Dance 2 s.h.
28.196 Dance Production 3 s.h.
27.120 Methods and Materials of Teaching Children's Dance 2 s.h.
28.135 Advanced Dance Technique courses 2 s.h.

Professional Education Requirements

7W.92 Introduction to Methods and Materials for Teachers 1 s.h.
7W.122 Methods and Materials in Elementary Physical Education 1 s.h.
7W.155 Educational Psychology and Measurement 3 s.h.
7W.55 Introduction to Teaching Physical Education 2 s.h.
27.156 Issues in Education 2 s.h.
27.146 Methods of Secondary Physical Education 3 s.h.
7W.170 Juvenile Relations for the Classroom Teacher 3 s.h.
7W.177 elective: Curriculum and Student Teaching 1 s.h.
7W.185 Observation and Laboratory Practice in Secondary School 6 s.h.
7W.183 Laboratory Practice in Elementary School 6 s.h.
7W.185 Cooperation Practicum (optional) 2 s.h.

Physical Education and Sport Program (non-teaching)

Physical Education Core Requirements

28.10 Orientation to Physical Education and Dance 1 s.h.
28.98 Anatomy 3 s.h.
28.90 Kinesiology 3 s.h.
28.106 Physiology of Exercise 3 s.h.
28.120 Measurement 3 s.h.
28.135 Administration of Physical Education and Athletics 2 s.h.
28.121 Psychology of Physical Education 2 s.h.
28.150 Physio-Social Dimensions of Sport 3 s.h.
28.169 Internships 6 s.h.

Sport and Dance Activity Requirements

Seven beginning level skills and three intermediate or advanced level skills

Fitness Specialist

28.250 Physiological Design for Exercise

28.98 Fitness for Adults 2 s.h.
28.97 Advanced First Aid and CPR 2 s.h.
28.156 Care of Athletic Injuries 3 s.h.
28.119 Methods of Secondary Physical Education 3 s.h.
<table>
<thead>
<tr>
<th>Program Leading to Coaching Endorsement</th>
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</thead>
<tbody>
<tr>
<td><strong>Theory of Coaching</strong></td>
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<tr>
<td>28:14 Theory of Coaching</td>
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<td>or</td>
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<tr>
<td><strong>28:20 Advanced Coaching</strong></td>
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<tr>
<td><strong>Growth and Development</strong></td>
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<tr>
<td>28:71 Growth and Motor Development</td>
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<td>or</td>
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<tr>
<td><strong>17:19 Growth and Development</strong></td>
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<tr>
<td>of the Young Child</td>
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<tr>
<td>28:106 Child Development</td>
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<td>or</td>
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<tr>
<td><strong>Anatomy</strong></td>
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<tr>
<td>28:80 Anatomy</td>
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<td>or</td>
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<tr>
<td><strong>27:53 Human Anatomy</strong></td>
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<td>or</td>
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<tr>
<td><strong>Exercise Physiology</strong></td>
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<tr>
<td>28:106 Physiology of Exercise</td>
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<td>or</td>
</tr>
<tr>
<td><strong>27:141 Exercise Physiology</strong></td>
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<tr>
<td><strong>Advanced First Aid and CPR</strong></td>
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<tr>
<td>28:37 Advanced First Aid and CPR</td>
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<tr>
<td>or</td>
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<tr>
<td>27:56 First Aid and CPR</td>
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<tr>
<td>or</td>
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<tr>
<td><strong>Red Cross Certifications</strong></td>
</tr>
<tr>
<td><strong>Care and Prevention of Athletic Injuries</strong> (Should be taken following anatomy and physiology)</td>
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<tr>
<td>27:57 Basic Athletic Training</td>
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<tr>
<td>or</td>
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<tr>
<td>28:105 Care of Athletic Injuries</td>
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<tr>
<td>or</td>
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<tr>
<td><strong>Administration of Physical Education and Athletics</strong></td>
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<tr>
<td>27:120 Administration and Curriculum in Physical Education</td>
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<td>or</td>
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<tr>
<td>28:120 Administration of Physical Education and Athletics</td>
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</tbody>
</table>

**Coaching Practicum**
28:104 Coaching Practicum 15 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.

**Health Education Endorsement Program**
The following sequence of courses meets the requirements for Iowa approval. 4,102 for both the Elementary Endorsement 50 and the secondary Endorsement 20. Students must complete a minimum of 20 semester hours to fulfill this approval area.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>28:38 Advanced First Aid and CPR</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>27:56 First Aid and CPR</td>
<td>0 s.h.</td>
</tr>
<tr>
<td><strong>Red Cross Certifications in First Aid and CPR</strong></td>
<td>4 s.h.</td>
</tr>
<tr>
<td>28:120 Food, Nutrition, and You</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>27:10 Growth and Motor Development</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**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 doctoral and over 150 doctoral degrees during the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serves.

The curricula assume 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 university degree usually leads to teaching, research, coaching, administration, or supervision in a school or university. The outstanding characteristics of the graduate degree are the flexibility of program planning for the individual student and the diversity of available research areas. Attendance in our graduate program is helpful in obtaining diversified instruction.

Graduate students work primarily in the Department of Physical Education and Dance, but the 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 candidates.

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 credit for the dissertation.

Prerequisites
Competence in the area noted under the M.A. program also is required for doctoral programs. Deficiencies in these areas must be rectified as early as possible.

Research Tools
All doctoral students are required to take a statistics course at an appropriate level at The University of Iowa. Students may choose either a foreign language or computer science as their second research tool.

The language requirement may be satisfied by taking two semesters of a given language or 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 option may be satisfied by taking 3 semester hours as approved by the departmental graduate committee.

Required Courses
28:301 Research Forum 0 s.h.
28:301 Seminar in Research 2 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
28:401 Thesis (for students on thesis option) 3-6 s.h.

Specialization
Students must complete a specialization of 30 semester hours, including dissertation; they also must take satisfactorily 20 semester hours in one or more departments other than physical education. The following specialization areas have been approved: administration of physical education and athletics, measurement and evaluation, psychology of sport, and sociology of sport. Students in other departments in another area should submit a plan of study for consideration.

Comprehensive Examination
All doctoral students must pass a comprehensive examination focused on, but not necessarily limited to, their area of specialization. Part of the examination may be oral. The examination is conducted according to the policies established by the departmental graduate committee, and is taken on a date set by the student and his or her advisor. The program of study and dissertation topic must be filed 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 consultant.

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.
28:90 Anatomy 3 s.h.
28:91 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 I 2 s.h.
28:114 Composition IV 2 s.h.
28:117 Beginning Laboratory 3 s.h.
28:15 Opera Dance Theatre Production 8 s.h.

Electives
Eight semester hours from the following:

28:121 Independent Study 3-6 s.h.
28:101 Methods and Materials of Teaching Children's Dance 2-3 s.h.
28:113 Ballet Practica 1 s.h.
28:117 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 s.h.
28:175 Dance Theory 3 s.h.
28:176 Criticism of Dance 3 s.h.
28:178 Intermediate Laboratory 3 s.h.
28:180 Dance Performance 3-6 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:

28:35 Tap 1 s.h.
28:36 Controlling Tap 1 s.h.
28:40 Modern Dance I 2 s.h.
28:41 Beginning Ballet 1 s.h.
28:111 Beginning Ballet 1 s.h.
28:122 Low Intermediate Ballet 1 s.h.
28:14 Intermediate Training for the Male Dancer 2 s.h.
28:10 Major Ballet I 2 s.h.
28:10 Beginning Jazz 1 s.h.
28:21 Beginning Jazz 1 s.h.
Physical Education and Dance/LIBERAL ARTS

2BD 22. Low Intermediate Jazz 1-2 s.h.
2BD 29. Beginning Modern Dance 1-2 s.h.
2BD 31. Continuing Modern Dance 1-2 s.h.
2BD 32. Low Intermediate Modern Dance 1-2 s.h.
2BD 58. Major Modern Dance II 1-3 s.h.
2BD 109. Major Modern Dance III 1-3 s.h.
2BD 110. Major Ballet I 1-2 s.h.
2BD 115. Major Ballet II 1-2 s.h.
Within the required 18 semester hours of dance technique, a minimum of two consecutive semesters must be taken from 2BD 107, 2BD 108, 2BD 109, or 2BD 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.

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
2BD 75-74. Composition I-II 4 s.h.
2BD 860. Anatomy 3 s.h.
2BD 811. Kinesiology 3 s.h.
2BD 235. Rhythmic Analysis of Dance 2 s.h.
2BD 101. History of Black Dance 3 s.h.
2BD 114. Dance History: Primitive through Twentieth Century 3 s.h.

Required Courses
2BD 107. Ballet Pedagogy 3 s.h.
2BD 108. Teaching of Modern Dance 3 s.h.
2BD 112. Composition II 3 s.h.
2BD 114. Composition IV 2 s.h.
2BD 117. Beginning Laboratory 3 s.h.
2BD 113. Twentieth Century Dance 3 s.h.
2BD 115. Dance Theory 3 s.h.
2BD 116. Criticism of Dance 3 s.h.
2BD 254. Seminar Dance 2 s.h.
2BD 252. Seminar: Perspectives of Human Movement 2 s.h.
2BD 463. Thesis 3-4 s.h.
2BD 107. Major Modern Dance I 2 s.h.
2BD 108. Major Modern Dance II 2 s.h.
2BD 119. Major Ballet I 2 s.h.
2BD 110. Major Ballet I 2 s.h.
Total 28-39 s.h.
Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Faculty
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.

Facilities
Gymnasiums, dance studios, special exercise rooms, and pools are used in the various programs in Dance and Gymnastics, North Hall, the Field House, the Recreation Building, and the recreation area at the Iowa Memorial Union. Facilities in the gymnasium, and 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.

Courses
Physical Education—Primarily for Undergraduates

2861. Elective Physical Education 1 s.h.
2862. Yellowstone Park in the Physical Education 1 s.h.
2864. Theory of Coaching 1 s.h.
2868. Water Safety Instructor 1 s.h.
2869. Orientation to Physical Education or Dance 1 s.h.
2870. Teaching of Sports 2 s.h.
2871. Laboratory in Teaching of Sports 1 s.h.
2872. Officiating 1 s.h.
2885. Intercollegiate Track and Field 1 s.h.
2889. Field Hockey for Adults 3 s.h.
2890. Weight Training 2 s.h.
2975. Growth and Motor Development 3 s.h.
2976. Methods and Materials in Elementary Physical Education 3 s.h.
2977. Methods and Materials in Secondary Physical Education 3 s.h.
2978. Mississippi River Trips 1 s.h.
2979. Officiating for Intercollegiate Sports 1 s.h.
2980. Field Hockey 1 s.h.
2981. Football 1 s.h.
2982. Basketball 1 s.h.
2983. Bowling 1 s.h.
2984. Track and Field 1 s.h.
2985. Swimming 1 s.h.
2986. Field Hockey 1 s.h.
2987. Basketball 1 s.h.
2988. Wrestling 1 s.h.
2989. Cross-Country 1 s.h.
2990. Tennis 1 s.h.
2991. Golf 1 s.h.
2992. Racket Ball 1 s.h.
2993. Volleyball 1 s.h.
2994. Softball 1 s.h.
2995. Basketball 1 s.h.
2996. Tennis 1 s.h.
2997. Track and Field 1 s.h.
2998. Swimming 1 s.h.
2999. Soccer 1 s.h.
3000. Wrestling 1 s.h.
3001. Track and Field 1 s.h.
3002. Football 1 s.h.
3003. Basketball 1 s.h.
3004. Tennis 1 s.h.
3005. Swimming 1 s.h.
3006. Football 1 s.h.
3007. Basketball 1 s.h.
3008. Tennis 1 s.h.
3009. Swimming 1 s.h.
3010. Football 1 s.h.
3011. Basketball 1 s.h.
3012. Tennis 1 s.h.
3013. Swimming 1 s.h.
3014. Football 1 s.h.
3015. Basketball 1 s.h.
3016. Tennis 1 s.h.
3017. Swimming 1 s.h.
3018. Football 1 s.h.
3019. Basketball 1 s.h.
3020. Tennis 1 s.h.
3021. Swimming 1 s.h.
3022. Football 1 s.h.
3023. Basketball 1 s.h.
3024. Tennis 1 s.h.
3025. Swimming 1 s.h.
3026. Football 1 s.h.
3027. Basketball 1 s.h.
3028. Tennis 1 s.h.
3029. Swimming 1 s.h.
3030. Football 1 s.h.
3031. Basketball 1 s.h.
3032. Tennis 1 s.h.
3033. Swimming 1 s.h.
3034. Football 1 s.h.
3035. Basketball 1 s.h.
3036. Tennis 1 s.h.
3037. Swimming 1 s.h.
3038. Football 1 s.h.
3039. Basketball 1 s.h.
3040. Tennis 1 s.h.
3041. Swimming 1 s.h.
3042. Football 1 s.h.
3043. Basketball 1 s.h.
3044. Tennis 1 s.h.
3045. Swimming 1 s.h.
3046. Football 1 s.h.
3047. Basketball 1 s.h.
3048. Tennis 1 s.h.
3049. Swimming 1 s.h.
3050. Football 1 s.h.
3051. Basketball 1 s.h.
3052. Tennis 1 s.h.
3053. Swimming 1 s.h.
3054. Football 1 s.h.
3055. Basketball 1 s.h.
3056. Tennis 1 s.h.
3057. Swimming 1 s.h.
Physics and Astronomy

Chair: Dwight W. Nicholson
Professor emeritus: Edward R. Nelson, James A. Van Allen
Associate professor: Robert L. Merklin, Wayne P. Polywko, Steven R. Spangler
Assistant professor: John A. Cerrato, Paul D. Kissler, Charles R. Newsom

Department: Bachelor of Science, B.S.; Bachelor of Arts, B.A.; Bachelor of Science, B.S.; Master of Science, M.S.; and Ph.D. in physics (including specialization in astronomy)
The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of its subjects. It also provides research facilities and guidance for individual scholarly work at an advanced level in selected specialties. Total departmental enrollments typically are 2,500 student registrations during each semester of the academic year and 200 during the summer session. All courses and advanced laboratories are taught by full-time faculty members. Senior faculty members teach the elementary courses and supervise associated laboratories.

Beyond the elementary level, typical course enrollments are 20; there is ample opportunity for individual work. Special introductory courses are offered for major in physics and astronomy and for others with special interest in these subjects. There are about 80 undergraduate majors—10 of whom are honor students—and 33 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:

- 22M10-19 Introduction to Physics 3 s.h.
- 22M11-13 Vector Calculus for Engineers 3 s.h.
- 22M13-17 Introductory Physics-I 3 s.h.
- 22M14-18 Introduction to Quantum Mechanics 3 s.h.
- 22M15-19 Statistical Physics 3 s.h.
- 22M20-23 Electricity and Magnetism 3 s.h.
- 22M21-25 Intermediate Laboratory (two semesters) 4 s.h.

Two additional courses, one of them at the 180-level, selected from:

- 22M22-26 Calculus-I 8 s.h.
- 22M23-27 Introduction to Linear Algebra 4 s.h.
- 22M24-28 Calculus II 4 s.h.
- 22M25-29 Calculus III 4 s.h.

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

- 22M20-24 Calculus-I 8 s.h.
- 22M21-25 Calculus-II 8 s.h.
- 22M26-29 Calculus-III 8 s.h.
- 22M30-33 Vector Calculus for Engineers 3 s.h.
- 22M34-37 Introduction to Quantum Mechanics 3 s.h.
- 22M38-41 Statistical Physics 3 s.h.
- 22M42-45 Electricity and Magnetism 3 s.h.
- 22M46-49 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 adviser 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 22M19 and all 100-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:

- 22M23-26 Calculus-I 8 s.h.
- 22M27 Introduction to Linear Algebra 4 s.h.
- 22M28 Calculus-II 8 s.h.
- 22M29-32 Calculus-III 8 s.h.
- 22M33-36 Engineering Calculus-I 8 s.h.
- 22M37-40 Engineering Calculus-II 8 s.h.
- 22M41 Differential Equations for Engineers 3 s.h.
- 22M42 Vector Calculus for Engineers 3 s.h.
- 22M43-46 Introductory Physics-I 3 s.h.
- 22M47-50 Introductory Quantum Mechanics 3 s.h.
- 22M51-54 Statistical Physics 3 s.h.
- 22M55-58 Electricity and Magnetism 3 s.h.
- 22M59-62 Intermediate Laboratory (two semesters) 4 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:

- 22M20-24 Calculus-I 8 s.h.
- 22M25-29 Calculus-II 8 s.h.
- 22M30-33 Calculus-III 8 s.h.
- 22M34-37 Vector Calculus for Engineers 3 s.h.
- 22M38-41 Statistical Physics 3 s.h.
- 22M42-45 Electricity and Magnetism 3 s.h.
- 22M46-49 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 adviser 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 22M19 and all 100-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:

- 22M23-26 Calculus-I 8 s.h.
- 22M27 Introduction to Linear Algebra 4 s.h.
- 22M28 Calculus-II 8 s.h.
- 22M29-32 Calculus-III 8 s.h.
- 22M33-36 Engineering Calculus-I 8 s.h.
- 22M37-40 Engineering Calculus-II 8 s.h.
- 22M41 Differential Equations for Engineers 3 s.h.
- 22M42 Vector Calculus for Engineers 3 s.h.
- 22M43-46 Introductory Physics-I 3 s.h.
- 22M47-50 Introductory Quantum Mechanics 3 s.h.
- 22M51-54 Statistical Physics 3 s.h.
- 22M55-58 Electricity and Magnetism 3 s.h.
- 22M59-62 Intermediate Laboratory (two semesters) 4 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:

- 22M20-24 Calculus-I 8 s.h.
- 22M25-29 Calculus-II 8 s.h.
- 22M30-33 Calculus-III 8 s.h.
- 22M34-37 Vector Calculus for Engineers 3 s.h.
- 22M38-41 Statistical Physics 3 s.h.
- 22M42-45 Electricity and Magnetism 3 s.h.
- 22M46-49 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 adviser 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 22M19 and all 100-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:

- 22M23-26 Calculus-I 8 s.h.
- 22M27 Introduction to Linear Algebra 4 s.h.
- 22M28 Calculus-II 8 s.h.
- 22M29-32 Calculus-III 8 s.h.
- 22M33-36 Engineering Calculus-I 8 s.h.
- 22M37-40 Engineering Calculus-II 8 s.h.
- 22M41 Differential Equations for Engineers 3 s.h.
- 22M42 Vector Calculus for Engineers 3 s.h.
- 22M43-46 Introductory Physics-I 3 s.h.
- 22M47-50 Introductory Quantum Mechanics 3 s.h.
- 22M51-54 Statistical Physics 3 s.h.
- 22M55-58 Electricity and Magnetism 3 s.h.
- 22M59-62 Intermediate Laboratory (two semesters) 4 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:

- 22H:25-26 Calculus I-II (8 s.h.)
- 22H:35-36 Engineering Calculus I-II (8 s.h.)
- 29H:17 Introductory Physics I-II (12 s.h.)
- 29H:11-12 College Physics (8 s.h. and
- 29H:5 Introductory Physics I (4 s.h.)
- 29H:6-62 General Astronomy (8 s.h.)
- 29H:15 Intermediate Mechanics (3 s.h.)
- 29H:17 Optics (3 s.h.)
- 29H:16 Statistical Physics (3 s.h.)
- 29H:15-12 Introduction to Astrophysics I-II (6 s.h.)
- 29H:128 Electronics (4 s.h.)
- 29H:129 Electricity and Magnetism (3 s.h.)
- 29H:132 Intermediate Laboratory (2 s.h.)
- 29H:137 Astronomical Laboratory (2 s.h.)

Minor in Astronomy

The 15 semester hours of courses required for a minor in the College of Liberal Arts must include 6 semester hours selected from the following:

- 29H:110-121 Introduction to Astrophysics I-II
- 29H:124-125 Astronomical Laboratory

An additional 6 semester hours of these courses or of 100-level physics courses. These 12 semester hours must be taken at The University of Iowa.

Double Major in Physics and Astronomy

Students may obtain a double major in physics and astronomy. Those interested in such a combination should consult with their advisors to be ensured of meeting the requirements of the College of Liberal Arts; see the "College of Liberal Arts" section of the Catalog.

Honors

Selected senior and senior majors may take 6-8 semester hours of 29H Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their program 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 one 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. 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 only after passing a qualifying examination in all principal areas of physics or astronomy; after passing the examination, the student is allowed to begin his advanced graduate work. The examination is given during the first week of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay advisor then becomes the candidate's general advisor and the chair of the final examination committee. Each candidate for an advanced degree is expected to serve as a graduate teaching assistant for at least one year.

Master of Science in Physics

The M.S. degree in physics is offered either with thesis or with a critical essay. The degree may be terminal or may serve as an intermediate step toward a Ph.D. degree. This degree is available with specializations in astrophysics, condensed matter physics, elementary particle physics, atomic, molecular, and optical physics, plasma physics, or theoretical physics. The final examination in either case is oral, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. degree with thesis requires 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimum 30 semester hours may be for research (29H:291 Research Physics).

The program for the M.S. degree with a critical essay requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic, and preparation of a critical essay on that topic.

More than 40 of the minimum 30 semester hours may be for the critical essay (29H:291 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 satisfied the following courses or their equivalents as an undergraduate or graduate student:

- 29H:15 Intermediate Mechanics (3 s.h.)
- 29H:16 Introduction to Quantum Mechanics (3 s.h.)
- 29H:17 Optics (3 s.h.)
- 29H:16 Statistical Physics (3 s.h.)
- 29H:124-125 Electricity and Magnetism (6 s.h.)
- 29H:133 Advanced Laboratory (two semesters) (4 s.h.)
- 29H:171-172 Mathematical Methods of Physics (6 s.h.)
- 29H:191 Atomic Physics (3 s.h.)
- 29H:192 Elementary Particles and Nuclear Physics (3 s.h.)
- 29H:191 Introductory Solid State Physics (3 s.h.)
- 29H:294 Physics Laboratory (3 s.h.)

The student's plan of study should provide for as much advanced work as possible and previous preparation permit.

Master of Science in Astronomy

The M.S. degree in astronomy is offered either with thesis or with a critical essay. The degree requirements are the same as those for the M.S. degree in physics (see above). Course requirements or their equivalents as an undergraduate or graduate student:

- 29H:15 Intermediate Mechanics (3 s.h.)
- 29H:16 Introduction to Quantum Mechanics (3 s.h.)
- 29H:17 Optics (3 s.h.)
- 29H:16 Statistical Physics (3 s.h.)
- 29H:124-125 Electricity and Magnetism (6 s.h.)
- 29H:133 Advanced Laboratory (2 s.h.)
- 29H:137 Astronomical Laboratory (2 s.h.)
- 29H:171-172 Mathematical Methods of Physics (6 s.h.)
- 29H:191 Atomic Physics (3 s.h.)
- 29H:294 Physics Laboratory (3 s.h.)

A student who intends to continue for a Ph.D. in physics with an astrophysics specialization should take the following courses as early in the master's program as possible:

- 29H:195 Plasma Physics (3 s.h.)
- 29H:232-233 Theoretical Astrophysics I-II (6 s.h.)
- 29H:234 Stellar Structure and Evolution (3 s.h.)
- 29H:255 Special Topics in Astrophysics (2 s.h.)
Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. Two Vax computers are available within the department, and the associated facilities of the University's Vax 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, aeronautics (optical and radio), atomic and molecular physics, elementary particle physics, laser physics, low energy nuclear physics, plasmas physics, and solid state physics. A major experimental space physics program is conducted in the department. 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-MW Van de Graaff accelerator, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. Studies in molecular, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several experimental plasma devices, including an electron-gun machine, are used to study confinement, nonlinear wave, 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 astronomy are carried on using an 18.3-meter parabolic reflector located at the North Liberty Radio Observatory in Iowa City, one of the radio telescopes in the U.S. Very Long Base 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 Peak Experimental Observatory, the Arequipa Observatory, and the Inirida Telescope Facility.

Active theoretical research is carried on in astrophysics, atomic and molecular physics, elementary particle physics, nuclear physics, plasma physics, solid-state physics, and space physics.

Courses

Prerequisites and corequisites are specified as guiding and may be waived by the instructor. Students may not repeat an elementary course for credit or grade points if they already have completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 251, 253, 251-11, 251-12, 251-14, 253, 250, and 250-1 are accepted toward the College or Liberal Arts General Education Requirement in the natural sciences.

Physics—Primarily for Undergraduates

35:060 Comprehensives Education 0 s.h.
35:110 Chemistry and Physics of the Environment 2 s.h.
35:120 Mathematics and Physics of the Environment 2 s.h.
35:130 Condensed Matter Physics, Electrodynamics 3 s.h.
35:140 Classical and Quantum Physics 3 s.h.
35:150 Modern Physics (3 s.h. for Senior Level Students) 3 s.h.
35:160 General Physics 3 s.h.
35:170 General Physics 3 s.h.
35:180 General Physics 3 s.h.
35:190 General Physics 3 s.h.
Astronomy—Primarily for Undergraduates

25.10 Modern Astronomy 3 cr.
Survey of astronomy; special attention to topics of current interest, such as planetary systems, solar system dynamics, pulsars, quasars, black holes, and cosmology. Discussion-laboratory session for participants of observatory observation and problem solving. Open to freshmen.

25.10 General Astronomy 4 cr.
Descriptive lectures and study of astronomical techniques and all components of solar system: sun, earth, moon, and planets; sun and satellites; stars, comets, meteorites; radio astronomy; current astronomical problems and issues. Three term minimum of credit is also required. This course satisfies the general education science requirement. It is advised to be taken after Computer Science 105, which is not an prerequisite. May be taken for 2 cr. as a part of 250:283. Prerequisites: at least one year each of high school algebra and geometry.

25.94 Reading in Astronomy 3 cr.

Astronomy—for Undergraduates and Graduates

25.110 Introduction to Astrophysics I 3 cr.
Fundamentals of astrophysical processes in solar system, galaxy, interstellar medium, and universe. Interstellar medium and star formation; the solar system; the interstellar medium and star formation; the intergalactic gas and dust, stellar and galactic kinematics, stellar evolution, HII regions, radiation processes in galactic and quasar, interstellar processes in astrophysics. Prerequisites: 25.118 and 25.212 and 25.214 or 25.216. Prior computer programming experience is recommended.

25.112 Introduction to Astrophysics II 3 cr.
Continuation of 25.110. Prerequisites: 25.118 and 25.214 or 25.216.

25.113 Introduction to Astrophysics III 3 cr.
Continuation of 25.112. Prerequisites: 25.118 and 25.216 or 25.214.

25.127 Astronomical Laboratory 3 cr.
Introduction to techniques and instrumental manipulations of optical and radio astronomy; radio astronomy is emphasized in the fall semester, optical astronomy in the spring. May be repeated. Prerequisites: 25.124 and consent of instructor.

Astronomy—Primarily for Graduates

25.218 Theoretical Astrophysics I 3 cr.
Radiation theory, theory of stellar atmospheres and continuous spectra of stars. Prerequisite: consent of instructor.

25.219 Theoretical Astrophysics II 3 cr.
Interstellar medium, nurture, matter, and galactic evolution. Continuation of 25.218.

25.224 Stellar Structure and Evolution 3 cr.
Structures of stellar interiors; nucleosynthesis in stars and evolution of stars. Prerequisites: consent of instructor.

25.225 Special Topics in Astrophysics 2 cr.
Adventures into the Russian and European astronomical traditions. May be repeated.

25.230 Seminar: Astrophysics 1 cr.
Discussion of current issues.

25.277 Research: Astronomy 1 cr.
Research in observational and theoretical astronomy.

Political Science

Chad J. Davis
Associate professors: Douglas E. Madsen, Serres A. Mous, John S. Nelson
Assistant professors: Gary R. Curlington, Richard Jacobson, Wilf Heston, Prentiss Squire John B. Wright
Instructor: Barbara L. Hilt

25.901 Thermodynamic, Political
25.902 Political
25.903 Political

Degree 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 37 semester hours of course work in political science and 12 semester hours in one of these departments: economics, geography, history, journalism and mass communication, philosophy, psychology, sociology, or anthropology. Students seeking the B.A. degree in political science may waive 3 semester hours of the General Education Requirement in social sciences. Courses used to satisfy General Education Requirements may not be used to satisfy the related field requirement. The course work in political science must include:

30:1 Introduction to American Politics 3 cr.
30:2 Introduction to Politics

It must also include two of these:

30:3 Introduction to Comparative Politics 3 cr.
30:4 Introduction to Political Thought and Political Action 3 cr.
30:5 Introduction to World Politics

It must include at least 18 semester hours in political science courses numbered 100 or above. Course 30:102 Washington Internship cannot be included in this total. At least 12 of the required 18 semester hours must be taken in regularly scheduled classroom work. Transfer students must take at least 9 of the 12 semester hours of work in political science at The University of Iowa. Students must maintain at least a 2.5 grade-point average in all political science courses taken at The University of Iowa. No 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:

25.212-216 Calculus I-II 8 cr.
25.218-222 Introduction to Statistical Methods 6 cr.

Other courses may be used with the written approval of the political science director of undergraduate studies.

Teaching Major
Undergraduates planning to teach in the social sciences with an emphasis on political science must meet these requirements:

Twenty semester hours of political science: including 30:1 Introduction to American Politics, two of the following introductory courses—30:30, 30:40, 30:50, 30:60, and 11 semester hours of political science courses numbered above 100.

Twelve semester hours of courses in each of two of these areas: American history, world history, economics, geography, and sociology. Twenty semester hours are required for psychology as a related field.

Completion of the sequence of professional education courses leading to certification (see the "College of Education" section of the Catalog)

Honors
The program leading to a B.A. degree with honors is open to a limited number of students with a minimum general grade-point average of 3.2. To graduate with honors, students must maintain at least a 3.2 grade-point average in political science and a general grade-point average of at least 3.2. Honors students must take 30:182 Honors Introduction to Political Inquiry and must complete at least two semester hours 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 advance 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 counted toward a core requirement cannot be applied to the minor.
Graduate Programs

At the graduate level, the department has a program leading to the Doctor of Philosophy degree in political science, which is particularly appropriate for students planning a scholarly academic career. The Master of Arts in Public Affairs is designed for students preparing for careers in government service, public affairs, or civic education teaching in secondary schools of 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 subject (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 non-Thesis 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 two years, the program is sufficiently flexible to accommodate students who may require additional time to meet degree requirements.

Fall Semester
322 Public Policy Analysis I 3 s.h.
322 Introduction to Administrative Computing 3 s.h.
623 The Government Sector 5 s.h.
Electives 8 s.h.
Spring Semester
3222 Administrative Theory and Policy 3 s.h.
3222 Urban Administration 3 s.h.
3223 Public Policy Analysis II 3 s.h.
Electives 6 s.h.
Summer Session
3591 Internships in Public Policy and Administration 3 s.h.
or
352 Practicum in Public Policy and Administration 3 s.h.
Elective 3 s.h.
Total 36 s.h.

Master of Arts with Thesis

Except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the College of Law section of the Catalog), the department usually offers the M.A. only as a preliminary step toward the Ph.D.

Students usually 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 examination 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 multivariate statistics, which is demonstrated by taking 3351 advanced research methods and receiving a grade no lower than B. Any special tools or skills needed for contributing 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 advisor in the first two years of Ph.D. work.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of graduate study, or within 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 then defend the proposal in an oral examination, which also may 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 semester hours 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 state of departmental requirements is set forth in the Guide to Graduate Study in Political Science. For graduate degree and degree requirements, see the "Graduate College" section 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 utilizing quantitative data and the computer for their undergraduate and graduate degree requirements.

The Graduate Department of Political Science also maintains a data bank that is available for research and teaching purposes. The data bank contains a wide variety of political data, including voting behavior in state and national elections, economic and demographic data, and other information relevant to research in political science.

The data bank also contains information on the political behavior of state and national officials, including voting behavior and political affiliations. The data bank also contains information on the political behavior of state and national officials, including voting behavior and political affiliations.

Courses

30-960 Cooperative Education Training 3 s.h.
36-1 Introduction to American Politics 3 s.h.
36-2 Introduction to International Relations 3 s.h.
36-3 Introduction to Political Theory 3 s.h.
36-4 Introduction to Political Economy 3 s.h.
36-5 Introduction to Political Science 3 s.h.
undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the work or world 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 general requirements in mathematics and natural science. The B.A. program has somewhat fewer 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 the requirements for either the B.A. or B.S. degree in psychology automatically satisfies the prerequisite 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 undergraduate teaching the excitement that such activity generates. Many opportunities are available for interested and capable students to participate in research projects being carried on in the department. The department has an active undergraduate research organization, the Iowa Student Psychology 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: 31:1 Elementary Psychology, 31:1 Elementary Psychology, 31:1:3 General Psychology, 31:43 Evaluating Psychological Research; one elective course from four of the five area elective groups below, with at least two of these area electives in 400-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.

Bachelor of Science

Students must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 28 semester hours of credit in psychology. At least 15 semester hours of the major must be completed in this department. The B.S. program must include the following courses, or equivalents: 31:3 General Psychology or 31:1 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 400-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. Students who wish to take 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 must be in upper-level courses in this department. This includes all 400-level courses and 31:43. Departmental advisors can help students identify sequences of courses for a minor that approximately complements the student's major.

Area Electives

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should check the latest version of the brochure, Undergraduate Psychology at Iowa, and the current Schedule of Courses.

Animal Learning and Biopsychology

31:17 Introduction to Comparative Psychology 3 sem. hrs.
31:125 Psychology of Learning 3 sem. hrs.
31:126 Physiological Psychology and Psychology 3 sem. hrs.
Graduate Program

The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for last degree. For students entering without previous graduate work, a fourth year of graduate standing is required. Those entering with previous graduate training require from two to four additional years in this department, depending on the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavors, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral processes, well trained in the methods and techniques for causal investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society. Prospective students should understand that the number of positions appropriate for graduates of this program is limited and that the competition for available openings is likely intense.

Graduate training is organized in the broad training areas: animal learning and biology, psychology, child and developmental psychology, clinical psychology, cognitive psychology, health and behavioral science, and social psychology. Each entrance level and specialization included in the program that develops throughout understanding of the substantive material and methods of investigation central to that specialization. While requiring a broad overview and basic training, all students must meet course requirements in statistics, research methods, training, 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. A number of joint programs have been formulated and others can be developed as agreement dictates. A joint program involves selecting course work in two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, aging, organizational and consumer behavior, communications, and neuropsychological training. Preparation in one of these interest areas involves some special advanced seminars within the Department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy

The Ph.D. degree requires satisfactory completion of at least 27 semester hours of graduate work in psychology, including at least 32 semester 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 the philosophy of psychology is strongly encouraged. Students also are expected to take sufficient research work outside the psychology training area to develop a reasonably broad background, the discipline of psychology as a whole. The nature of these requirements and their placement in the graduate program vary somewhat among the training areas and depend on the individual student's background and interests.

During each of the first three semesters, graduate students ordinarily take three courses, e.g., a general core course, a course in life training area, and an outside area elective. Students also become familiar with the literature, research strategies, and special techniques in one or more research areas through engagement in individually supervised research projects. This research participation, which may be with one faculty member all year long or with a different faculty member each semester, is designed to help students develop, by early in the second year, a reasonably detailed plan for the master's research project.

By the end of the second year—certainly very early in the third year—students are ready for the master's degree project and defend the thesis.

In addition to Ph.D. candidacy is based on a faculty-wide review of the student's overall record of performance on the M.A. project papers, and in teaching, research, and service activities.

During the third year students continue selected course work in the training and interdisciplinary areas, develop a proposal for the dissertation research, and prepare for the comprehensive examination. This written examination covers the student's specialization and related areas and is ordinarily given at the beginning of the fourth year. The fourth year is devoted primarily to advanced seminars and to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students offer an oral defense of the dissertation and are expected to 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 degree in psychology. However, the Master of Arts degree with thesis is a required step for Ph.D. degree students preparing for the Ph.D. This degree requires satisfactory completion of at least 30 semester hours of graduate level work in psychology with at least 15 hours in the Department. The course work must include a statistics

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 independent 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.
Master of Arts without Thesis
The Master of Arts degree without thesis is in option available to those low students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 38 semester hours of graduate credit in psychology, including at least 24 semester hours in this department. The course work must include a statistics sequence, a learning course, and at least one course outside the primary area. Students also must pass successfully on a written examination covering the area of specialization.

Graduate Training Areas
Animal Learning and Biology
The focus of the program in animal learning and biology is on the analysis of learning and motivation, primarily in invertebrate subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, comparative psychology, motivation, neuroendocrinology, and psychobiology. In addition, the program has the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurophysiology, histology, and biochemical assay. Faculty members in the animal learning and microbiology 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. Faculty members are involved in emerging interdisciplinary fields such as behavioral medicine and neuropsychobiology.

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 an area such as language, achievement, memory, the development of social judgment, emotional development, and abnormal development. Most of these specializations require substantial preparation in at least one of the other training areas in the department. The program does not have a specific life-span focus, but several faculty members are involved in research on aspects of aging and can provide some supervision for students interested in this area. Faculty members have close contacts with colleagues from the Department of Speech Pathology and Audiology, the College of Education, and the Department of Prechter; these relationships can be useful to students who wish to gain additional training in development 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 systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practical experience in the Carl E. Seashore Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in areas such as psychophysiology, personality, neuropsychology, cognitive and affective disorders, behavioral and cognitive therapies, sexual dysfunction, and child psychotherapy. Faculty members collaborate actively with colleagues from departments such as psychiatry, medicine, statistics and Gynecology, and from agencies such as the Health Services Research Center, the School of Social Work and its Gerontological Center, and in nearby area education agencies. Partly as a consequence of such cooperation, clinical training in 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-health and behavioral science have been established. Similar joint programs combining clinical specialty with work in other specialties 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 must include at least completion of all course work and of at least two years of supervised training.

Health and Behavioral Sciences
The health and behavioral sciences program is designed to prepare students to engage and to participate in the physiological behavior of mental and physical health. The program emphasizes study in the areas of methodology and statistics, the biological basis of behavior, neurophysiology, psychology, pain, communication processes, decision-making, unconscious, and unconscious functioning of mental disorders. 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 sciences. To broaden research perspective and skills prior to beginning the dissertation, advanced students also take in an affiliated laboratory (research laboratory). Students in the health and behavioral science program may acquire specialized competence in areas such as cardiovascular, psychophysiology, and psychopharmacology, and prevention, mental health, disease control, cancer, pain, mental health of language and cognitive disorders, decision-making and communication regarding health decisions, 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, Anesthesia, Internal Medicine, Neurology, Obstetrics and Gynecology, Obstetrics and Gynecology, Pediatrics, Orthopedic Surgery, and other relevant areas such as psychology and psychiatry, and psychology and education.

Cognitive Psychology
Students affiliated with the cognitive-behavioral program prepare their training in the broad areas of perception, language, learning, and memory. Current faculty members specialize in the following areas: learning, memory, and problem solving in children; cognitive, developmental, and neuropsychological approaches; cognitive psychology, psychophysiological conditioning, and signal detection theory; cognitive testing; and cognition, cognitive science, and information processing.

Special research is closely coordinated with faculty members from the College of Business Administration, the Health Services Research Center, and from several departments in psychology, industrial and management engineering, speech pathology and audiology, and aesthetics.

sequence, a learning course, and at least one course outside the primary specialty area. Students also must complete an acceptable academic design and conduct a successful oral defense of their thesis.
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 cognitive psychology, dealing with reciprocal influences of social and physiological systems; attitudes and social cognition, dealing with topics such as attitude acquisition and change, cognitive consistency, attribution, and persuasion; social influence on behavior, including social learning, social development, imitation, conformity, etc.; the social psychology of groups, dealing with cooperation and competition, group decision processes, social facilitation, and distraction; and clinical psychology, the study of social psychological aspects of clinical problems and processes.

Students in the social psychology area also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors, and behavioral medicine. Such preparation, which ordinarily will involve selected course work outside the department, e.g., in the College of Business Administration or the Department of Communication Studies, and participation in special research projects, will broaden students' employment prospects.

Admission

The graduate program in psychology is designed to lead to the Ph.D. degree; all applicants are considered on this basis. Occasionally, a qualified applicant interested in advanced work only through the M.A. level may be admitted to pursue a joint graduate program involving psychology and other departments. A person interested in such a program should contact the department chair before filing an application.

The deadline for applications is February 1. For those applying for fall admission, the Graduate Record Examination (GRE) General Test must be taken by October, certainly no later than in December. The deadline for psychology is not required. Applications may be submitted at any time but are considered only once each year—between February 1 and March 15—for admission the following fall. Admission decisions are based on a comprehensive consideration of prior academic performance, letters of recommendation, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant's statement about background and purpose. Initial review of admission materials is done by faculty members in the applicant's primary interest area.

An undergraduate major in psychology—including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences—is desirable, although certainly is desirable though not required.

Students who have not had such a background but who are strongly qualified on other grounds may be admitted but will be expected to remedy deficiencies through special course work or independent study prior to embarking on the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as the master's thesis or equivalent, which reflect significant engagement in research and scholarly writing. This material and the record of previous graduate course work will be reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In all instances a student will be permitted to complete substantial research or to write for a master's degree at another institution while a regular full-time student in the graduate program at the University of Iowa.

A foreign language is not required for admission, and there are no foreign language requirements for either the M.A. or the Ph.D. degree in psychology.

Financial Aid

All students admitted to the graduate training program in psychology are automatically considered, on the basis of merit, for available financial support in the form of fellowships, teaching assistantships, research assistantships, fellowships, and tuition scholarships. No additional application for financial aid is required.

Faculty

Nonfinal 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 manifest in the publication of some 106 articles, books, reviews, and book chapters each year. Many faculty members also are active 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. Sperce Laboratories of Psychology and adjoining space in Seashore Hall include a variety of laboratories, many heavily computerized, and animal and human studies, three separate animal housing areas, a histology laboratory, observation suites with remote audiovisual control and recording equipment, soundproofed Chambers, closed-circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. Seashore Psychology Clinic, and well-equipped electronical, mechanical, and woodworking shops. A specially equipped research laboratory is available for use in studies conducted at schools and other locations.

The University's Weing Computing Center currently is operating an IBM 3625, six PDP-8's, and three timesharing DEC PDP-15/70. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Office space for graduate students and faculty is provided in Seashore Hall. The psychology branch of the University's Mail Library is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department greatly benefit from the facilities and staff of other relevant departments and local agencies, including The University of Iowa Hospitals and Clinics, the Psychiatric Hospital, the Veterans Administration Medical Center, the University Counseling Service, the Child Development Clinic, the Werdin Johnson Speech and Hearing Clinic, the Health Services Research Center, and the School of Social Work Genealogy Program.

Courses

Primarily for Undergraduates

Other 311 or 313 or equivalent, is prerequisite to all other courses in psychology. Only one or two of these credits may be taken for credit. 3113, 3114, 3116, 3117, 3119, and 3119 are additional 6-hour options that have satisfactorily completed an introductory psychology course, e.g., 3111 or 3113 or equivalent.

311 Elementary Psychology 3 s.h.

An introduction to scientific and experimental methods and general principles of psychology. The course will include the history of psychology, the relationship between psychology and other sciences, personality and social psychology, the factors influencing cognitive development and growth, the nature of research, and the role of psychology in society.

312 Introduction to Clinical Psychology 3 s.h.

Survey of the major topics in the clinical psychology field, including an introduction to the philosophy and practice of clinical psychology, an overview of the history of the profession, an introduction to the major perspectives in the field, the nature and treatment of psychological disorders, and an introduction to the major clinical settings.

313 Introduction to Child Psychology 3 s.h.

Survey of current research and testing in child psychology, including topics such as cognitive development, the development of emotional and social skills, language development, and the development of intelligence. The course also covers the development of personality, the development of family systems, and the development of family environments.

315 Introduction to Social Psychology 3 s.h.

Research involving the psychological phenomena and implications of behavior in social situations. The course includes an introduction to the history and theory of social psychology, an introduction to the major perspectives in the field, and an introduction to the major methods of research in the field.

316 Research Methods in Psychology 3 s.h.

Survey of the major topics in the research methods field, including an introduction to the philosophy and practice of research methods, an overview of the history of the profession, an introduction to the major perspectives in the field, the nature and treatment of psychological disorders, and an introduction to the major clinical settings.

317 Research Methods in Social Psychology 3 s.h.

Research involving the psychological phenomena and implications of behavior in social situations. The course includes an introduction to the history and theory of social psychology, an introduction to the major perspectives in the field, and an introduction to the major methods of research in the field.
Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and rehabilitation settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:
104:130 Orientation to Rehabilitation Settings
104:131 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 big business, such as health spas and clubs, sales of recreation goods or services, or recreation-related businesses, will find this specialization well-suited to their needs. Those interested in industrial recreation, the provision of recreational services and opportunities for employees by the employers, also will find this 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:
104:134 Health Promotion in Corporate, Hospital, and Private Settings
104:139 Managing the Commercial Recreation Enterprise

Three courses selected with advisor

Internship Opportunities

The recreation education program places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend state and national professional conferences, and every class in the professional core includes lectures by working professionals, as well as opportunities for field experience related to coursework.

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 150 local, state, and national departments, agencies, and services provide field work 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:

- Students must complete a minimum of 15 semester hours in the recreation education curriculum, 12 of which must be taken at advanced (over 100 level) courses at The University of Iowa, in the course with the approval of the undergraduate coordinator.

Graduate Program

The master's program is designed to prepare students for undergraduate, supervisory, and teaching positions in recreation systems and in universities. 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 (26 semester hours). An introduction to leisure and leisure research is provided through 104:130 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 municipal departments, schools, volunteer agencies, churches, the armed forces, state and federal agencies, industries, private organizations, etc. The emphasis within these programs may be on special populations, such as 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. To provide this emphasis on special populations, the program draws heavily from other disciplines, such as public administration, social work, urban and regional planning, sociology, geography, and psychology.

Therapeutic Recreation Administration

Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aging in both institutional and community settings.

The program is directed toward understanding recreation's role in a comprehensive rehabilitation process, including both clinical and community facets, and thus prepares the student to work with a broad range of disability areas either in a medical setting or in the community. Through the role of related area courses, strengths in specific disability areas may be developed.

It is recommended that the student have 10 to 12 semester hours of undergraduate credit in courses such as abnormal psychology, psychology of adjustment, sociology, the mentally retarded, and aging. The student also should have skills in at least two program fields.

Financial Aid

Assistance for doctoral candidates is available in the form of graduate teaching assistantships, research assistantships, teaching assistantships, and post-master's assistantships. The student may obtain assistance through the department.

Facilities

Students majoring in recreation education have opportunities to gain considerable practical experience and will be assisted in the process by the recreation administration.

Courses

Primarily for Undergraduates

104:200 Cooperative Education Internship
104:204 Foundations of Recreation
The school is not a theological seminary; it has an academic rather than vocational orientation. The undergraduate major in religion provides a foundation for advanced academic work or for study at a theological seminary. The school's graduate program provides preparation for the study and teaching of religion as an academic discipline.

Undergraduate Program

Undergraduate students seeking the Bachelor of Arts in religion elect at least 27 semester hours of course work in religion. At least 12 of the 27 semester hours must fall under one of the areas of concentration listed below. A minimum of three courses in the area of concentration must be at the 100 level, and at least 12 of the semester hours must be outside the area of concentration. A minimum of one course outside the area of concentration must be at the 100 level. Students also must fulfill the requirements of the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). Three semester hours of the General Education Requirements in the humanities are waived for students majoring in religion.

The areas of concentration are Jewish and Christian Scripture, history of Christianity, Western theology and ethics, and Asian religions.

Honors

Religion majors eligible for the College of Liberal Arts honors program may 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 Greek-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 the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University of Iowa Hospitals and Clinics provide the setting for research and training in this program.

Candidates for the Master of Arts in religion and health must complete 30 semester hours of course work. Final research 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, may complete 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 nominate eligible students for Graduate Fellowship. 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 College of Graduate. In addition, the School of Religion ordinarily requires a combination of 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 combination of verbal-quantitative score of 1100 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 European languages, the University offers courses in Japanese, Chinese, Sanskrit, and Pali. The School of Religion offers Hebrew, and other Semitic and Hamitic languages. The University of Iowa Hospitals and Clinics provide clinical opportunities for students to use the M.A. program in religion and health. Individual courses are offered in medical and medical ethics also utilize hospital personnel and facilities.
The Rhetoric Program's reading and writing labs are available to all University students. If you have a vacation time (or "student life at Iowa" section of the Catalog).

**Courses**

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### 332.244 Survey: Japanese Religious Studies

This is an overview of religious studies in Japan, including historical and cultural contexts. It offers an introduction to the key figures, texts, and themes in Japanese religious studies.

### 332.245 Religious Perspectives in Counseling: Masculinity

This course explores the role of masculinity in religious perspectives, focusing on how religious beliefs and practices have been shaped by and in response to the social and cultural constructs of masculinity.

### 332.246 Discourses on Religious Traditions and Health

This course examines the role of religious traditions in shaping health beliefs and practices. It explores how religious beliefs and practices can influence health outcomes and the ways in which health interventions can be informed by religious perspectives.

### 332.256 Critical study of Religious Functions

This course provides an in-depth analysis of the functions of religion in society. It examines how religious beliefs and practices have been used to maintain social order, to justify power, and to provide a sense of meaning and purpose.

### 332.257 Inquiry and Ethics

This course focuses on the ethical dimensions of religious inquiry. It explores how religious beliefs and practices have been used to justify or condemn ethical actions, and the ways in which ethical inquiry can be informed by religious perspectives.

### 332.260 Inquiry and Ethics

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### 332.261 Inquiry and Ethics

This course focuses on the ethical dimensions of religious inquiry. It explores how religious beliefs and practices have been used to justify or condemn ethical actions, and the ways in which ethical inquiry can be informed by religious perspectives.

### 332.262 Methods in Religion and Theology

This course provides an overview of the methods and approaches used in the study of religion and theology. It explores how different methodologies can be used to investigate religious beliefs and practices.

### 332.263 Methods in Religion and Theology

This course provides an overview of the methods and approaches used in the study of religion and theology. It explores how different methodologies can be used to investigate religious beliefs and practices.

### 332.264 Methods in Religion and Theology

This course provides an overview of the methods and approaches used in the study of religion and theology. It explores how different methodologies can be used to investigate religious beliefs and practices.

### 332.266 Methods in Religion and Theology

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### 332.267 Methods in Religion and Theology

This course provides an overview of the methods and approaches used in the study of religion and theology. It explores how different methodologies can be used to investigate religious beliefs and practices.

### 332.268 Methods in Religion and Theology

This course provides an overview of the methods and approaches used in the study of religion and theology. It explores how different methodologies can be used to investigate religious beliefs and practices.

### 332.269 Methods in Religion and Theology

This course provides an overview of the methods and approaches used in the study of religion and theology. It explores how different methodologies can be used to investigate religious beliefs and practices.

### 332.291 Theories of Religion

This course provides an overview of the major theories of religion. It explores how different theories have been used to explain the nature and function of religious beliefs and practices.

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**Undergraduate Program**

Students seeking a degree in the Religion Department at the University of Iowa will find many opportunities to explore the rich and diverse traditions of religious studies. The program offers courses in a variety of religious traditions, from ancient to modern, and from theistic to non-theistic. Students have the opportunity to engage with primary sources, such as religious texts, and to develop critical thinking and analytical skills. The program also offers opportunities for students to pursue further education in religious studies, whether at the undergraduate or graduate level.
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. Appointments are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Summer and Study Abroad Programs

The department strongly encourages undergraduate and graduate students to participate in intensive programs of language study. Both in the United States and in the Soviet Union. In recent years an increasing number of students have studied in summer-, semester-, and academic-year programs at Leningrad State University under the auspices of the Council on International Educational Exchanges, as well as in the similar American Council of Russian programs at the Pushkin 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, concentrated sequence of courses (411-105-106) 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 sequence is open to students in the humanities as well. The course 411-105 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 surveys of 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 supplies residents with courses by the faculty 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 Zdrobo Union, 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, tapes and cassette recorders, record players, sound-proof recording rooms, drill booths, and video facilities. An electronic classroom, a soundproof workroom, a library of tape, disc, and cassette recordings are also available.

Courses

For Undergraduates and Graduates

411 First-Year Russian I 4 cr.
412 First-Year Russian II 4 cr.
413 Second-Year Russian I 4 cr.
414 Second-Year Russian II 4 cr.
415 Introduction to Conversational Russian 3 cr.
416 Intermediate Conversational Russian 3 cr.
417 Beginning Conversational Russian 3 cr.
418 Advanced Conversational Russian 3 cr.
419 Beginning Symmetrical Language Workshop 3 cr.
420 Beginning Symmetrical Language Workshop 3 cr.
421 Special Readings 3 cr.
422 Special Readings 3 cr.
423 Special Readings 3 cr.
424 Special Readings 3 cr.
425 Special Readings 3 cr.
426 Special Readings 3 cr.
427 Special Readings 3 cr.
428 Special Readings 3 cr.
429 Special Readings 3 cr.
430 Special Readings 3 cr.
Science Education

Coordinator: Edward L. Pizzio

PhD Provost: Vincent G. Littrell, John E. Periak, Janice A. Shmyrinen, Robert E. Varr

Associate Professor: George W. Coman, David G. Philip, Edward L. Pizzio, Daniel S. Baldion, John J. Wilkes

Degrees offered: B.S., B.S. in Mathematics, B.A., M.S., M.A.T., B.S., B.A., Ph.D.

Science education is concerned with the interface between science and society. The academic programs in science education include preparation in more than one discipline of science, a consideration of science from a philosophical, historical, and sociological perspective, an introduction to applied science (technology), and an education sequence. Science education courses prepare science educators for transdisciplinary, 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 students while providing an appropriate option for students interested in education as it pertains to science teaching, medical professionals, allied health fields, or areas such as scientific journalism and law.

The science education major is not intended to prepare teachers 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 semesters of sequential study;

Introduction to two other fields of science;

A specified proficiency in mathematics as a tool of science (more mathematics is required for the physical science emphasis than the biological area);

A view of science from a historical, philosophical, cultural perspective;

Experience with the application of scientific knowledge in a technological society.

Outlines for the five areas of emphasis offered in science education are as follows:

Biological Emphasis

2. Introduction to Botany

3. Plant Physiology

4. Animal Physiology

5. Environmental Science

Genetic Emphasis

2. Introduction to Genetics

3. Principles of Genetics

4. Molecular Genetics

5. Population and Community Ecology

Mathematical Emphasis

2. Introduction to Mathematics

3. Calculus I

4. Calculus II

5. Linear Algebra

Physical Emphasis

2. Introduction to Physics

3. Mechanics

4. Electricity and Magnetism

5. Quantum Mechanics

Environmental Studies Emphasis

2. Introduction to Ecology

3. Principles of Conservation Biology

4. Environmental Chemistry

5. Environmental Geology

Agricultural Emphasis

2. Introduction to Agriculture

3. Principles of Soil Science

4. Principles of Crop Science

5. Principles of Animal Science

Environmental Science

2. Introduction to Environmental Science

3. Principles of Environmental Science

4. Environmental Chemistry

5. Environmental Geology

Agricultural Science

2. Introduction to Agricultural Science

3. Principles of Crop Science

4. Principles of Soil Science

5. Principles of Animal Science

Environmental Health

2. Introduction to Environmental Health

3. Principles of Toxicology

4. Principles of Public Health

5. Principles of Occupational Health

Agricultural Technology

2. Introduction to Agricultural Technology

3. Principles of Crop Production

4. Principles of Soil Management

5. Principles of Animal Husbandry

Environmental Science

2. Introduction to Environmental Science

3. Principles of Environmental Science

4. Environmental Chemistry

5. Environmental Geology

Agricultural Science

2. Introduction to Agricultural Science

3. Principles of Crop Science

4. Principles of Soil Science

5. Principles of Animal Science

Environmental Health

2. Introduction to Environmental Health

3. Principles of Toxicology

4. Principles of Public Health

5. Principles of Occupational Health

Agricultural Technology

2. Introduction to Agricultural Technology

3. Principles of Crop Production

4. Principles of Soil Management

5. Principles of Animal Husbandry
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Elective in astronomy, geology, physical geography, and meteorology 4 s.h.

Application of Science
One approved course chosen with the advisor's assistance; a wide variety of transfer courses from applied areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 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.
12:104 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 8 s.h.
44:101 Weather and Climate 3 s.h.
43-13-14 Principles of Chemistry I-III 6 s.h.
4:16 Principles of Chemistry Lab I 1 s.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.

Application of Science
At least one approved course chosen with the advisor's assistance; a wide variety of transfer courses from applied areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 1-3 s.h.
At least 25 semester hours of the physics emphasis must be earned in 100-level courses.

Elective in astronomy, geology, physical geography, and meteorology 4 s.h.

Chemistry Emphasis
4:13-14 Principles of Chemistry I-III 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:131 Physical Chemistry I 3 s.h.
4:141 Organic Chemistry Laboratory 2 s.h.
Chemistry electives 6 s.h.
29:11-12 College Physics 8 s.h.
Physics Electives 8 s.h.
Physical science electives 8 s.h.
22:53-55 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
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 emphasis must be earned in 100-level courses.

Physics Emphasis
29:11-12 College Physics 8 s.h.
29:17-18 Introductory Physics I-II 8 s.h.
29:19 Introductory Physics III 6 s.h.
22:53-55 Engineering Calculus I-II 8 s.h.
4:13-14 Principles of Chemistry I-III 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 3 s.h.

Application of Science
One approved course chosen with the advisor's assistance; a wide variety of transfer courses from applied areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.
At least 25 semester hours of the physics emphasis must be earned in 100-level courses.

Electrical Engineering Emphasis
For qualified electrical engineering students, the 29:11-12 course is required.

Other requirements:

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 Iowa endorsement for teaching certification should consult a faculty member in Science Education.

All science teaching minors must include:

75:151 Science Methods I: Individualized Instruction in Science 2 s.h.
75:152 Science Methods II: Science and Teaching Strategies 2 s.h.
75:159 Observation and Laboratory Practice in the Secondary School 3 s.h.
97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

Other basic requirements:

Biology
2:1 Introduction to Botany 4 s.h.
33:3 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-III 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
Chemistry electives 6 s.h.

Science Education/LIBERAL ARTS 207
Physics
29.11-12 College Physics 8 s.h.
97.106 Societal and Educational Applications of Selected Concepts and Topics 5 s.h.
97.105 Physics Electives 10 s.h.

General Science I
2.1 Introduction to Botany 4 s.h.
29.11-12 General Astronomy 4 s.h.
12.3 Principles of Physical Geography 2 s.h.
12.4 Principles of Historical Geography 3 s.h.
14.3 Principles of Chemistry I 3 s.h.
29.11 College Physics 4 s.h.
Applications elective 3 s.h.

General Science II (Environmental Studies Emphasis)
5.1 Introduction to Botany 4 s.h.
97.131 Principles of Animal Biology 5 s.h.
97.132 Population and Community Ecology 3 s.h.
12.3 Principles of Chemistry I 3 s.h.
12.4 Principles of Physical Geography 3 s.h.
Science Electives 3 s.h.
97.140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Earth Science
12.3 Principles of Physical Geography 3 s.h.
12.4 Principles of Historical Geography 2 s.h.
Science Electives 4 s.h.
97.102 Societal and Educational Applications of Earth Science Concepts and Topics 10 s.h.

Special Rules
Since the Science Education Program involves many students preparing for a variety of professions and graduate areas, many faculty advisers, and several colleges and departments, some special rules and regulations apply to science education students. They include the following:

At least 10 semester hours of graded credit in science must be earned at The University of Iowa.

Transfer students using any of the joint programs must complete their last 30 semester hours in residence at The 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 adviser 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 OLD Natural Science General Examinations may be used toward the major in science education.

Science courses taken in other colleges of the University (for example, colleges of Engineering and Medicine) will not be accepted in lieu of the required course work for the major unless one of the science departments of the College of Liberal Arts certifies in writing to the Registrar's Office that such a course is equivalent to the one offered in that department.

Courses used for the major may not be taken pass-fail; grades from all courses used for the science education major will be used to compute 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 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 through 12th grade students interested in exploring science teaching as a career option. Students register for program seminars and varied practical experience. In addition to activities with youth, seminars, and regular courses, students are involved in excursions, social activities, and special action projects.

Graduate Programs
The Science Education Program offers graduate study leading to the Master of Science, Educational Specialist, and Doctor of Philosophy.

The M.A.T. program is designed for students with strong undergraduate preparation in science who have decided after receiving the bachelor's degree that they want to teach science in secondary schools. Students who want to be certified to or 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 supervision, and for 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 continue 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 30-35 s.h.
Corporative studies 3-4 s.h.
Minimum total 34 s.h.

Master of Science with Thesis
Science education 9 s.h.
Science specialization 30-35 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 8 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 is a special program in science education that involves in-service teachers in special curricular 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. This conference is a spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch, for about 400 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science—ASK-A-SCIENCER and each summer sponsors special workshops utilizing national audiences 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 interaction

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 the development 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 photograghic laboratory, a departmental conference room, an office for coordinating Iowa-ASSIST, a model-in-service program for visiting schools in implementing new national curricular programs in Iowa schools, a suite of offices or student program activities; space for the elementary school faculty 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-instruction laboratory including laboratory and audiovisual materials; a library; a large seminar room used as an instructional center for some secondary teacher education sessions, including many facets of the Iowa UPSET model; multiple offices for graduate assistants; a common area for small group discussions and individual work and two large areas for regional group and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate sophomore areas in science education and to provide science options for elementary and special education majors.

- Primarily for Undergraduates
  - 67-5 Cooperative Education Internship 3 s.h.
  - 67-149 Fundamentals of Science 4 s.h. Science topics and laboratory investigations dealing with physical, life, and earth sciences based on problem solving and principles of science. Required for majors in science education.
  - 67-98 Investigation in Science 3 s.h. Special projects in science for high-ability secondary school students. May be repeated.
  - 67-14 Science Survey 1 s.h. Considerations of major conceptual schemes involving science; attention to societal implications of scientific research and modern technology.
  - 67-15 Science Survey 1 s.h. Experience in laboratories where science and technology are emphasized, individual projects required.
  - 67-181 Science Survey II 3 s.h.
  - 67-100 Science Foundations I 3 s.h.
  - 67-101 Science Foundations II 3 s.h.
  - 67-102 History Research Project 1 s.h. Research experience required of undergraduates preparing honors degree.
  - 67-103 Science Foundations III 3 s.h.

For Undergraduates and Graduates

- 97-161 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h. An introduction to the major physical and anthropogenic forces of the earth sciences, emphasizing common applications to today's world.
- 97-162 Societal and Educational Applications of Biological Concepts 3 s.h. Review of basic conceptual themes characterizing the science of biology and a survey of principles and policies used by the scientist in dealing with major environmental and a current social debate related to biology.
- 97-163 Societal and Educational Applications of Selected Concepts of Physics 3 s.h. Review of the major ideas of physics and how they have been deceived; emphasis on how each idea affects modern society.
- 97-164 Societal and Educational Applications of Chemical Concepts 3 s.h. Application of the principles of chemistry in industry, communications, and daily living activities related to illustrate the utility of the science of chemistry.
- 97-118 Sociology: Selected Science and Education Topics 3 s.h. Review of research in the field; special emphases on sociological aspects of teaching.
- 97-112 Advanced Science Foundations II 3 s.h.
- 97-113 Introduction to Neurology 3 s.h.
- 97-114 Directed Study 1-3 s.h.
- 97-115 Individual Instruction 1-3 s.h.
- 97-120 Meaning of Science 3 s.h. Critical evaluation of the conceptual enterprise from social, ethical, cultural, and epistemological viewpoints.
- 97-120 Science in Industrial Perspective 3 s.h. Science in the context contemporary issues, that the perspective of historical development.
- 97-140 Problems in the Teaching of Earth/Environmental Science 3 s.h. Emphasis on environmental education resources in the classroom, including learning, environmental and natural resources center and network of resources involving K-12 teaching.
- 97-141 Activities Designed to Advancement Environmental Awareness 1-3 s.h.
- 97-143 Activities Designed in Environemental Learning 1-3 s.h.

Social Studies Education

Chair: Robert H. Pilch
Professor: Michael L. Pilch
Associate Professor: Ronald J. Terhune
Degrees offered: B.S., M.A., Ph.D.

Undergraduate Program

The major in social studies education is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and social planning, and governmental service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in...
secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 60 semester hours of credit earned in departments cooperating in the social studies education program. Distribution of the course work is as follows: 12 semester hours in either U.S. or world history; 12 semester hours in each of economics, political science, and sociology; at least 1 semester hour in geography; and 9 semester hours in government, 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 social sciences departments in order to be eligible for admission. 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 placements. 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 the plan the student completes at least 10 semester hours of course work in the cooperating departments, and may complete the remaining 26 semester hours in one or among all of the cooperating departments.

In the other plan the student completes at least 20 semester hours of course work in the cooperating departments and not more than 10 in education, and may complete the remaining 6 semester hours in either or both of his or her related departmental areas.

Both plans require at least 9 semester hours of credit earned in courses numbered 200 or above, including one such course in each of the student's fields of emphasis.

All candidates also must complete 96:201 Individual Instruction in Social Studies Education and/or 96:202 Seminar in Social Studies Education.

The candidate must pass an oral and written comprehensive examination.

The program offers a 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 at an accredited institution, and must have a minimum grade-point average of 3.0 in all work undertaken in social studies up to the time of application. After accepting a social studies education major, the M.A. candidate must maintain at least a 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 curricula 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 educational administration.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree, exclusive of field experience established by the College of Education. These credits are to be distributed among the cooperating disciplines and professional education. Depending on the background and needs of the candidate, work in the chosen disciplines will comprise approximately 50 percent of the total 90 semester hours, work in education approximately 50 percent.

Depending on the area of study be or the chosen, the candidate will have the opportunity for regular classwork, 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 96:201 Individual Instruction in Social Studies Education and/or 96:202 Seminar in 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 his or her academic field 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, and satisfactory performance on the Graduate Record Examination, and an academic record showing promise of scholarly success.

Facilities

Students in social studies education have access to the facilities and offices of the cooperating departments and the College of Education. Major and minor courses are also available, such as the University of Iowa Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Administration Center, the Curriculum Laboratory, the Statistical Consulting Center, the 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 completed advanced degrees having been earned in history, the social sciences, and education. They are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses

96:201 Individual Instruction in Social Studies Education

96:202 Seminar in Social Studies Education

96:203 Seminar in Social Studies Education

96:204 Seminar in Social Studies Education

96:205 Seminar in Social Studies Education

96:206 Seminar in Social Studies Education

96:207 Seminar in Social Studies Education

96:208 Seminar in Social Studies Education
Social Work

Art General Education Requirements, excluding the social sciences requirement. The General Education Requirement in natural sciences should include 11:21 Human Biology. The following courses are required for the major:

Freshman/Sophomore Years

31. Introduction to American Politics 3 s.h.
31.1 Elementary Psychology 3 s.h.
31.3 General Psychology 3 s.h.
34.1 Introduction to Sociology: Principles Any basic economics course 3-4 s.h.

In Sequence

42. Introduction to Social Work 4 s.h.
42.140 Human Behavior in the Social Environment 3 s.h.
42.141 Social Work Practice 1 3 s.h.
42.141 Social Work Practice 2 3 s.h.
Junior/Senior Years

42.119 Social Work and Discrimination 2 s.h.
or
42.127 Social Work and Racism or Approved course from another department (see School of Social Work for list) 3 s.h.

42.14 Social Welfare Policy and Policy 3 s.h.
42.189 Social Work Research 4 s.h.
42.199 Field Experience Seminar 1 s.h.
42.30 Field Experience 8-16 s.h.

A minimum of 12 semester hours of course work is required in one department listed below. Most students select either sociology or psychology. Courses used to meet general education and foreign language requirements do not count toward the 12 semester hours, nor do the specifically required social science courses.

American studies
Anthropology
Business
Economics
Education
English
History
Home economics
Journalism
Political science
Psychology
Recreation education
Religion
Sociology
Spanish

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with Honors in social work. The cumulative grade-point average is required for participation in the program, which enables students to study in depth subjects of interest to them.

Admission

Admission to the undergraduate program in social work requires:

Completion, with at least a C grade, of 42.122 Introduction to Social Work, which can be taken the sophomore year, at a 24 grade-point average; and Completion of the application process.

More information is available from the coordinator of admissions at the School of Social Work.

Graduate Program

The Master of Social Work program prepares social workers for leadership in the profession and for advanced social work practice either as generalists or in one of two concentrations. The program’s general focus is on family systems and social change. Its common goals, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change, and to become responsive to the needs of human service recipients. By its very nature, the MSW program is designed to enable the student to meet the needs of the individual and to acquire intervention skills for working with individuals, families, small groups, organizations, and communities.

The program is accredited by the Council on Social Work Education.

The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school, including at least 36 semester hours earned after admission to the program. Students who have completed an accredited undergraduate major in social work are eligible for a 12-semester-hour reduction of credits required for the M.S.W. With their advisers, those who plan an active role in assisting students in their educational planning, students should explore additional ways to reduce the requirement.

The school operates a 12-month program. The summer session is a full semester, with not less than six hours of classroom courses as is offered during fall and spring.
The school offers both classes and practicum learning in the Des Moines and Quad Cities satellite centers. Register School of Social Work faculty are available for student advising and for teaching all required courses.

The centers have three major purposes: to enrich the educational programs of full-time students by providing greater diversity of practicum opportunities; to make pursuit of the graduate degree in social work geographically available to students unable to relocate to Iowa City; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on choice the student makes, practicum begins as early as the second semester. Some students remain in the City-Cedar Rapids area for the remainder of their programs, but most are 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 capitol city. Des Moines also is the largest city in the state. Many fine practicum opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles from Iowa City. As part of the Quad Cities metropolitan area of 740,000 people, this center provides a wealth of practicum opportunities unavailable in Iowa City, including regional and advocacy planning, agency work with social and economic minorities, and programs for the elderly. Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for courses and to take advantage of Iowa City's extensive social services and cultural activities. 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.
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 to each department through their 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 Programs.

Another feature of the school is the opportunity it affords its students to participate in internship 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 is as follows:

1. A bachelor’s degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities.
2. 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 given consideration.

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 25 percent of the M.S.W. class with grade-point averages below 3.0. Applicants who are especially strong candidates on the basis of other criteria may be admitted. Since the school seeks to maintain a heterogeneous student body, it makes special efforts to admit students representing a diversity of racial, ethnic, and socioeconomic backgrounds. Students with developmental disabilities also are encouraged to apply.

The part-time program is designed for students with whom full-time study would be a hardship due to employment or other considerations.

Applications for full-time study are accepted beginning September 1 for the next academic year. Applications for part-time study may be made at any time.

A complete statement of graduate admissions policies is available upon request.

Continuing Education

Through the Saturday and Evening Class Program in Iowa City and the School of Social Work’s Des Moines and Quad Cities centers, non-degree students may enroll for courses and workshops. Twelve semester hours of graduate course work may be applied to the master’s degree requirements for students who later enroll at 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. To maintain this contact with their academic advisors regarding availability of funds from the School of Social Work, Aid received through The University of Iowa Office of Student Financial Aid does not preclude students from cooperation for aid through the School of Social Work.

Various types of aid administered by the School of Social Work include research and teaching assistantships, work-study appointments, traineeships, scholarships, and the Eleanor R. Taylor loan aid 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 - 5020 Introduction to Social Work (4 hrs.) Social work as a social institution; beginnings and development of social work; contemporary problems of social work; historical development of American social work; requirements include a minimum of 10 hours voluntary work. Permission: audience standing or consent of instructor. Same as 5021.

5100 Human Development (3 hrs.) Review of human social development from infancy to middle age. Major topics include growth and development of personality; effects of growing up in the family; critical experiences in human development; socialization and personality; methods of research in human development. Same as 5110.

5105 Social Development (3 hrs.) Review of human social development from infancy to middle age. Major topics include growth and development of personality; effects of growing up in the family; critical experiences in human development; socialization and personality; methods of research in human development. Same as 5110.

5130 Social Psychology (3 hrs.) Review of human social development from infancy to middle age. Major topics include growth and development of personality; effects of growing up in the family; critical experiences in human development; socialization and personality; methods of research in human development. Same as 5110.

5196 Human Behavior in the Social Environment (3 hrs.) Review of human social development from infancy to middle age. Major topics include growth and development of personality; effects of growing up in the family; critical experiences in human development; socialization and personality; methods of research in human development. Same as 5110.
Sociology/LIBERAL ARTS 215

42.201 Structure of Eating Disorders 3 s.h.
Studies the basic eating disorders in an attempt to identify factors which influence eating patterns, including familial, psychological, social, and cultural issues.

42.205 Advanced Research Seminar 2-3 s.h.
Applicants are expected to develop and conduct research projects that require skills such as needs assessment, program evaluation, and policy analysis. Prerequisite: 42.201 or consent of instructor.

42.210 Natural Resource Development and Management 3 s.h.
Identifies natural resource systems, analyzes economic resources required by natural resource systems, and addresses important economic, social, and environmental issues. Prerequisite: 42.201 or consent of instructor.

42.217 International and Political Behavior 3 s.h.
Explores the international system; the causes and consequences of international conflict; the foreign policy process; and the role of international organizations. Prerequisite: 42.210 or consent of instructor.

42.221 Introduction to Social Science Research 3 s.h.
Offers an introduction to basic research methods in the social sciences. Topics may include descriptive, correlational, and experimental techniques. Prerequisites: 42.210 or consent of instructor.

42.231 Social Work Field Seminar 2 s.h.
Field experience in a social work agency. Students are expected to work with clients and gain experience in the field of social work. Credit approved for only one. Prerequisite: 42.210 or consent of instructor.

42.236 Social Work Practice 2 s.h.
An overview of the major components of social work practice. Prerequisite: 42.210 or consent of instructor.

42.237 Qualitative Research Methods 2 s.h.
Introduce students to the qualitative research methods used in social science research. Prerequisite: 42.210 or consent of instructor.

42.239 Social Work Practice Internship 2 s.h.
An opportunity for students to engage in social work practice in a community agency. Prerequisite: 42.210 or consent of instructor.

42.240 Individual Study 2 s.h.
Project initiated by student's interest carried out under direction of faculty member, sometimes including group participation. May be repeated. Prerequisite: admission to DePaul College.

42.242 Practicum Seminar 1 s.h.
Designed to help students apply academic learning with the practice-oriented skills studied in 42.236. Prerequisite: 42.236.

42.245 Practicum in Social Work 2 s.h.
Practicum in social work practice under the supervision of a faculty member and a qualified social worker. Evaluation of field experience is based on performance and professional growth, integration of learning from both domains. Prerequisites: 42.201, 42.210, 42.236, and 42.237.

42.290 Thesis 2 s.h.
May be repeated. Maximum of 4 credit hours. Prerequisite: 42.236.

Sociology

Chair: Edward J. Leavett
Assistant professor: William P. Foxey, Rosemary O'Neill, Linda A. Jacobs, Barry National, Elizabeth Milita, Robin Snyder
Degrees offered: B.A., B.S., M.A., Ph.D.

Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of baccalaureate study in sociology provides background for employment in several fields, such as social services, criminal justice, personnel, applied social research, community 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, political science, 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.

Beth programs require 27 semester hours of course work in sociology, including:

43.1 Introduction to Sociology: Principles 3 s.h.
43.2 Introduction to Sociology: Problems 3 s.h.
43.10-11 Theory, Research, and Statistics 5 s.h.

The student should complete the two-semester sequence, research, and statistics course work early to maximize his or her capacity to benefit from the other sociology courses.

In addition to the sociology requirements listed above, the B.S. program in sociology requires the following:

26.103 Introduction to Symbolic Logic or 3 s.h.
26.104 Introduction to Philosophy of Science 3 s.h.
22.25 Elementary Statistics and Inference 3 s.h.

One of these four combinations:

22.10 Finite Mathematics or 4 s.h.
22.11 Brief Calculus or 4 s.h.
22.10 Finite Mathematics or 4 s.h.
22.19 Elementary Functions or 3 s.h.
22.16 Introduction to Programming with Pascal 4 s.h.
22.17 Programming Techniques and Data Structures 3 s.h.

Students with exceptionally strong high school backgrounds in mathematics may substitute 22.825-26 Calculus I-II 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 one of the following departments: anthropology, economics, geography, political science, or philosophy. A complete list of requirements for a sociology major is available in the department office.

Departmental requirements are the same for transfer students as for other students. While some courses taken at other colleges are applicable toward the major, the department requires that transfer students majoring in sociology take Hist 102 during their senior hour 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 want 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:

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
ecconomics, geography, American history, world history, political science, and psychology (21 semester hours required in psychology); and

The professional courses required for certification (23 semester hours).

Sociology courses taken to fulfill the General Education Requirement in social science also 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 a B 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 honors degree in sociology are completion of the honors core (34800, 100 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 section 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 program the student chooses, the master's program offers the student for doctoral studies or for professional positions in society. A graduate in sociology may elect to pursue a career in government, business, law, teaching, private, and public positions. Opportunities for research (experimental, and observational methods are readily available in the department.

Master of Arts

The M.A. degree in sociology requires 30 semester hours with thesis or 32 semester hours without thesis. The program without thesis is designed to prepare the student for 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 History of Sociological Theory, 34:202 Sociological Theory, 34:214 Elementary Statistics and Data Analysis, and 34:215 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 in which legal process, administrative procedures, or direct intervention techniques are necessary 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 12 hours of graduate work taken after entering the Joint program toward the credits required for the J.D., even though those hours are also credited toward the M.A. in sociology.

At the discretion of the student's 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 less course work than would be necessary if the two degrees were pursued independently. This program is highly individualized, allowing the student to explore various aspects of the relationship between law and society.

Doctor of Philosophy

The Ph.D. program in sociology requires a minimum of 72 semester hours of graduate-level course work, including the M.A. course 34:216 Intermediate Statistics and Data Analysis and 34:230, graduate seminar 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 the basic areas represented by the faculty, such as social psychology, urban/industrial sociology, family, social stratification, organizations, demography, and research methods, and sociology. 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 total score of 1500 from the quantitative plus verbal sections of the Graduate Record Examination (GRE). Aptitude Test. Foreign students whose native language is not English should submit scores from the TOEFL exam. In addition to fulfilling the Graduate College requirements for admission (see the "Graduate College" section of the Catalog), the applicant must complete a departmental application statement and use its personal reference forms in obtaining three letters of reference.

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 financial assistance is June 1.

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. Inquiry 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.S. or a B.A. degree, a grade-point average of 2.75, and a total score of 1000 from the quantitative plus verbal sections of the GRE Aptitude Test. A descriptive publication is available at the department office.

Financial Aid

The Department of Sociology offers three types of aid: teaching assistants, research assistants, and teaching-research assistants. Fellowship positions are limited to 10-12 graduate students who receive awards. Students who receive one-half time assistance work 20 hours each week for 10 months.
35.182 Spanish Picassian Literature 3 s.h.
35.183 Spanish Novels Since the Civil War 3 s.h.
35.184 Twentieth-Century Spanish Women Writers 3 s.h.
35.187 Periods and Genres of Spanish Literature I 3 s.h.
35.188 Periods and Genres of Spanish Literature II 3 s.h.
Civilization (3 s.h.)
One of the following:
35.192 Spanish American Civilization 3 s.h.
35.193 Spanish Civilization 3 s.h.
Electives (6 s.h.)
The electives may include one course in Portuguese (with exception of 35.1 and if for no more than 4 semester hours credit) or if any course numbered 35.100 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 3 s.h.
35.102 Accelerated Intermediate Spanish 3 s.h.
35.105 Language Teaching Practicum 3 s.h.
35.115 Methods of Foreign Language Teaching and Instruction 3 s.h.
35.116 Language Laboratory Equipment Preparation and Use 3 s.h.
35.117 Basic Program for Foreign Language Computer and Instruction 3 s.h.
One course given in English may be taken to satisfy 3 semester hours of this requirement provided additional readings are done in Spanish.

High School Teaching Certification in Spanish
Spanish majors who wish 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 12 courses listed above as not sufficient toward the degree requirement for the Spanish major also may not be applied toward the minor. No more than 3 semester hours of credit may be applied toward the minor from the following courses:
35.119 Introduction to Bilingualism 3 s.h.
35.127 Introduction to Chicano Literature and Culture 3 s.h.
35.174 Topics in Chicano-Puerto Rican Studies 3 s.h.
35.175 Cultural Intensity in Caribbean Literature 3 s.h.
35.176 Latin American Studies 3 s.h.
35.195 Special Work 1-3 s.h.
Students who plan to use the Spanish minor in teaching on the secondary level or in 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 required for students without previous foreign language study or experience. Classes are small, providing for a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Brazilian Portuguese, they incorporate cultural material in the form of films and music.
The Bachelor of Arts in Portuguese requires the following courses and their equivalents, for a total of 27 semester hours of course work beyond the second-year level:

Prerequisites
35.101 Elementary Portuguese I 4 s.h.
35.102 Elementary Portuguese II 4 s.h.
or 35.100 Accelerated Portuguese 0-5 s.h.
35.11 Intermediate Portuguese I 4 s.h.
or 35.12 Intermediate Portuguese II 4 s.h.

Required Courses (15 s.h.)
35.112 Topics in Portuguese Language (upper-division language) 3 s.h.
35.114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
or 35.107 Brazilian Literature I 3 s.h.
or 35.108 Brazilian Literature II 3 s.h.
or 35.107 Introduction to Portuguese Literature 3 s.h.

Two of the Following Courses (6 s.h.)
35.121 Portuguese for the Professions 3 s.h.
or 35.122 Portuguese for the Professions (upper-division language) 3 s.h.
or 35.107 Brazilian Culture and Civilization 3 s.h.
or 35.107 Brazilian Fiction 3 s.h.
or 35.11 Portuguese in Latin-American Literature 3 s.h.
or 35.119 Topics in Portuguese Linguistics 3 s.h.

Electives (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 35.100 Contemporary Latin America, 35.200 Contemporary Latin America, 35.107 Honors: Spanish Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Latin American Studies Program
The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America. Work in the program leads to a certificate or minor in Latin American Studies.

To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminars. For further information on the Latin American Studies Program.
Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of undergraduate Spanish major. Deficiencies may be remedied with the appropriate course work. The following course work is required.

- 35:177-178 Periods and Genres in Spanish American Literature I-II 6 s.h.
- 35:187-188 Periods and Genres in Spanish Literature I-II 6 s.h.
- 35:200 Foreign Language Teaching Methods 3 s.h.
- 35:201-204 Guided Spanish Linguistics I-IV 8 s.h.
- 35:226 Historical New-Romance Languages 7 s.h.

For elective courses at the 200 level or the advanced 100 level, no more than two (5 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 semester and 8 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 semester. The maximum 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 15-hour requirement for the M.A. degree.

Teaching Certification

Exclusively of the student-teaching requirement, graduate students may take one course necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

Three written examinations and one oral examination are given. For written examinations, students must include at least one topic each from two of the following three areas (both Spanish and Hispanic-American literature must be represented): Spanish linguistics, Medieval literature or Golden Age literature; and, Modern Spanish literature, Spanish American literature, or Luso-Brazilian literature.

Doctor of Philosophy in Spanish

Two doctoral programs are available. The first is dedicated to Hispanic literatures. Before the comprehensive examination, candidates must complete the equivalent of three years of college-level study in another Romance language and become well-acquainted with its literature in limited areas of specialization (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 credits 37 s.h.
- 35:250 Introduction to Contemporary Literary Theory 3 s.h.
- Three 300-level seminars 9 s.h.
- 35:393 Thesis 2 s.h.

Eight elective courses at the 200-level or the advanced 100 level, no more than three (9 s.h.) of which may be taken outside the department, bring the 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 credits 37 s.h.
- Department of Linguistics:
  - 103:110 Articulatory and Acoustic Phonetics 3 s.h.
  - 103:111 Experimental Analysis 3 s.h.
  - 103:122 Phonological Theory and Analysis 3 s.h.
  - 103:125 Synthetic Syntax 3 s.h.
  - 103:122 Phonological Theory 3 s.h.
- Department of Spanish and Portuguese:
  - One course in Advanced Spanish Syntax 3 s.h.
  - One course in Comparative Romance Linguistics 3 s.h.
  - One course in Spanish (Undergraduate) 3 s.h.

One elective course in Spanish linguistics 3 s.h.
Two 300-level seminars in Spanish linguistics 6 s.h.
35:393 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 methodology. The exam may be taken at any time at which the doctoral student begins to give intellectual focus to their program of study. Because it affords opportunity for both student initiative and faculty advice in defining a doctoral student's academic goals, the Ph.D. qualifying examination in significant in preparing doctoral students to take the Ph.D. comprehensive examination and to write the Ph.D. dissertation.

The Ph.D. qualifying examination is administered in both written and oral parts and includes the following.

Written presentation and subsequent oral defense of a research paper.

Written analysis of a single test in Hispanic literature or a single problem in Spanish linguistics that is assigned to the candidate 30 minutes before the two-hour written test.

The problem selected is taken from a short reading list that has been previously agreed upon among the candidate and his or her examiners; or, in the case of a linguistics qualifying examination, the problem selected also may be taken from the range of the candidate's previous course work.

Oral examination on major literary or linguistic works with which the candidate may be expected to be familiar, either from reading lists or from previous course work.

Excluding preparation of the research paper and the 30 minutes of advance selection on the test or problem presented to the candidates for analysis, the length of the written portion of the Ph.D. qualifying examination is two hours. The oral portion, which includes defense of the research paper, discussion of the written examination, and discussion of selected excerpts from linguistic works, is usually one and one-half hours long. The examining
committees for the Ph.D. qualifying examination is composed of five departmental faculty members.

Comprehensive Examination
The purpose of the Ph.D. comprehensive examination is to determine whether the candidate has gained sufficient breadth and depth of research knowledge in Hispanic literatures or in Spanish linguistics to enter the dissertation as a teacher-scholar. The number of examination fields is four, organized as follows:

Literature Track
A broad area in Spanish literature history; a reading list is determined by the student and his or her advisory committee.

A broad area in Spanish-American literary history; a reading list is determined by the student and his or her advisory committee.

Two specialized areas of the candidate's choosing. These areas might involve further and more specialized exploration of particular periods, genres, or movements within Spanish, Spanish-American, and/or Luso-Brazilian literary and cultural history; or they might involve in-depth study of specific problems in Hispanic literary criticism or in literary theory. The candidate is given wide latitude in formulating the reading lists for these areas according to his or her research and teaching interests.

Linguistics Track
Contemporary Spanish syntax; a reading list is provided.

Contemporary Spanish phonology; a reading list is provided.

History of the Spanish language; a reading list is provided.

One specialized area of the candidate's choosing. This area might involve exploration of a specialized topic in one of the three core areas listed above, or it might involve study of a particular topic in comparative Romance philology, Spanish dialectology, Portuguese linguistics, comparative Spanish-Portuguese linguistics, applied linguistics (e.g. bilingualism; second language acquisition, sociolinguistics), or linguistic theory. The candidate is given wide latitude in formulating the reading list that area according to his or her research and teaching interests.

The Ph.D. comprehensive examination is administered in both written and oral parts. The written portion consists of a three-hour examination in each of the candidate's four areas; an oral examination follows, usually lasting two hours. The examining committee is composed of five departmental faculty members.

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of support are available for the completion of a master's degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as graduate students' studies and performance meet departmental standards, they will continue to receive support over a reasonable period of time, but usually not for more than five years. Students who wish financial support should apply directly to the departmental office.

All graduate students pursuing advanced degrees in the Department of Spanish and Portugese are required to spend at least one academic year as a teaching or research assistant in the department.

Facilities
The language laboratory provides facilities for language learning, teaching, and research. These include standard and shortwave radio, tape recorders, record players, microprojector recording rooms, two drill rooms with 56-channel tape recorders providing a simultaneous interpreter, duplicate and student record, an electronic classroom, a soundproof work room, films and films projection equipment and facilities, and a library of tape, videotape, and disc recordings. The department offers its major a specific course in language laboratory procedures.

Courses
Spanish—Primarily for Undergraduates
Undergraduate students who have had less than two years of high school Spanish are placed in a first- or second-semester class. Students with two or more years of high school Spanish are placed in a third- or fourth-semester class. Prospective and entering students should consult a departmental advisor. Students who want more advanced placement may take the placement test. Transfer students who have taken college Spanish or other institutions will be placed according to previous courses completed.

Students may not, except with the department chair's approval, take an elementary course for credit after having completed a higher-level course for which the elementary course was an prerequisite.

35:004 Comparative Literature Internship 0.0-4

35:116 Elementary Spanish I 4.0-4

35:211 Elementary Spanish II 4.0-4

Prospective: 35:1 or equivalent.

15.0 Accelerated Elementary Spanish 5.0-5

A complete one-year course; solution required for degree requiring one year of college-level foreign language.

15.1 Intermediate Elementary Reading in Spanish 2.0-2

Beginning course primarily for graduate students who need a reading knowledge of Spanish. Does not satisfy foreign language requirements. Offered through Guided Correspondence Study.

10.3 Spanish for Health Professionals 3.0-4

Intensive elementary course to acquaint students with basic vocabulary used when dealing with Spanish-speaking patients, emphasizing Spanish for medical and nursing students. Credit for this course will not fulfill the multicultural requirement of students majoring in the social sciences. Students may receive a maximum of 3.0-4.0 in this course. Prospective: 35:1 or equivalent.

35:1 Intermediate Spanish I 4.0-4

Prospective: 35:1 or equivalent.

35:2 Intermediate Spanish II 4.0-4

Prospective: 35:1 or equivalent.

35:3 Accelerated Intermediate Spanish 5.0-5

A compact second-year course, presented in one semester. May be taken instead of 35:11 and 35:12 to satisfy foreign language requirements. Prospective: 35:1 or equivalent.

10.0 Contempary Latin American Narrative 3.0-3

Primary focus on the different approaches to the major texts of the decade 1960-70 as an overview of cultural and social events in Latin America. A discussion of the forms and content of literature of the Latin American countries. Offered through Guided Correspondence Study.

10.5 Spanish Pronunciation 3.0-3

Designed for intermediate and upper intermediate Spanish students who wish to improve their pronunciation. Emphasis will be on improving students' technical difficulties. Meetings will be arranged with 35:00. Prospective: 35:1 or equivalent.

10.6 Special Work 1.0-3

Prospective: faculty signature.

Spanish—For Undergraduates and Majors

10.640 Hispanic Institute summer

For course taken in Hispanic Study Abroad Program in Spain.

35:006 Accelerated Elementary Spanish 5.0-5

A complete one-year course; solution required for degree requiring one year of college-level foreign language.

10.2 Accelerated Intermediate Spanish 5.0-5

Companion to 35:096. Open to graduate students.

10.210 Accelerated Intermediate Spanish 5.0-5

Companion to 35:006. Open to graduate students.

Prospective: 35:1 or equivalent.

35:100 Spanish Conversation: Junior Level 2.0-2

Designed to improve conversational ability in Spanish, encompassing oral expression and correct use of vocabulary. May be repeated. Prospective: 35:1 or equivalent.

35:104 Spanish Conversation: Senior Level 2.0-2

Designed to further students' skills in speaking Spanish. Students gain greater pronunciation and intonation. May be repeated. Prospective: 35:1 or equivalent.

35:105 Language Teaching Practicum 1.0-3

A practicum course in dual language instruction for graduate students matriculated in the teaching programs who wish to develop and S.I. methodology is employed. Students receive one credit for this course. May be repeated. Prospective: 35:1 or equivalent.

35:109 Spanish Pronunciation 2.0-2

Designed for graduate and advanced students of Spanish who wish to improve their pronunciation. A practical, rather than technical approach to the study of students' particular difficulties. Meets concurrently with 35:104. Spanish graduate students and 35:12 may repeat.
25.107 Third-Year Spanish Language | 4 a. 
Designated in the ear, early-advanced stages of Spanish grammar, emphasis on developing auditory and auditory-tactile speaking, and writing Spanish. Prerequisites: 20.0 or equivalent.

25.109 Third-Year Spanish Language II | 4 a. 
Designed for Spanish majors and others who want to increase their basic competence in the Spanish language. Prerequisites: 20.1 or equivalent.

25.110 Fourth-Year Spanish Language | 4 a. 
Instructs students in the use of vocabulary, grammar, and the cultural background of the literature of the Spanish Language. Prerequisites: 20.1 or equivalent.

25.111 Fourth-Year Spanish Language II | 4 a. 
Instructs students in the use of vocabulary, grammar, and the cultural background of the literature of the Spanish Language. Prerequisites: 20.2 or equivalent.

25.112 History of the Spanish Language | 3 a. 
Course designed to acquaint the student with the changes that occurred in the early Latin period, the role of the Visigoths and the Moors on the development, and the sound changes of the Siglo de Oro. Studies of words and word borrowings showing the changes in word and form that developed from Latin to Modern Spanish.

25.113 Structures of the Spanish Language | 3 a. 
Introduction to the saving of Spanish in terms of its grammatical categories, focusing on morphology (word formation), syntax (sentence construction) and semantics (meanings of words), and their interdependence in an integrated system of language. Prerequisites: 20.1 or equivalent.

25.115 Spanish Phonetics | 3 a. 
Gives an introductory description and phonetic transcription of Spanish words, and how those phonetic sounds are written in Spanish.

Tapes used to review topics in the deeper theoretical implications of Spanish grammar.

25.117 Methods Foreign Language | 3 a. 
Survey of major instructional methods and techniques in second language instruction, including: accent analysis, role-plays, and the active use of language in the classroom.

25.118 Language Laboratory Equipment & Practice | 2 a. 
Introduction to the use of language laboratory equipment, including the tape recorder, typewriter, and television. Film projection, introduction to the use of the TV and the typewriter. Prerequisites: 20.1 or equivalent.

Introduction to programming in BASIC, emphasis on techniques for foreign language instruction.

25.121 Business Spanish | 3 a. 
A four-year-level Spanish language course designed to introduce the language of business. Emphasis on vocabulary and grammar pertinent to business. Prerequisites: 20.1 or equivalent.

25.122 Spanish for International Trade | 3 a. 
A four-year level Spanish language course designed to introduce the language of business. Emphasis on vocabulary and grammar pertinent to business. Prerequisites: 20.1 or equivalent.

Studies in intermediate Spanish for students studying English as a second language. Emphasis is on the concept of the language as a system. Prerequisites: 20.1 or equivalent.

25.124 Advanced Spanish Language-I | 3 a. 
The study of the language of advanced Spanish speaking countries, emphasizing syntax and vocabulary pertinent to the language of advance countries. Prerequisites: 20.1 or equivalent.

Introduction to the history, development, and structure of the Spanish language. Emphasis is on the concept of the language as a system. Prerequisites: 20.1 or equivalent.

25.126 Spanish American Civilization | 3 a. 
A survey course covering Spanish American civilization from the conquest to the present. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.127 Contemporary Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.128 Spanish American Poetry | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.129 Spanish American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.130 Spanish American Short Stories | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.131 Latin American Studies Seminar | 2 a. 
For advanced students in Spanish literature, Latin American literature, and related fields. Prerequisites: 20.1 or equivalent.

25.132 Latin American Studies Seminar | 2 a. 
For advanced students in Spanish literature, Latin American literature, and related fields. Prerequisites: 20.1 or equivalent.

25.133 Contemporary Latin American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.134 Contemporary Latin American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.135 Spanish American Poetry | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.136 Contemporary Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.137 Spanish American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.138 Contemporary Latin American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.139 Contemporary Latin American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.140 Contemporary Latin American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.141 Spanish American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.142 Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.143 Spanish American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.144 Contemporary Latin American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.145 Contemporary Latin American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.146 Contemporary Latin American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.147 Spanish American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.148 Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.149 Contemporary Latin American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.150 Spanish American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.151 Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.152 Spanish American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.153 Spanish American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.154 Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.155 Spanish American Drama | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.156 Spanish American Civilization | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.

25.157 Spanish American Literature | 3 a. 
A survey course covering the major literary movements in Latin America since the mid-19th century. The course emphasizes the role of Spain and the Spanish in the development of Latin America. Prerequisites: 20.1 or equivalent.
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Undergraduate Programs

Since the master's degree or its equivalent in 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 sequences of speech, hearing, and language. Those undergraduate programs also may be taken by persons pursuing a degree in the College of Liberal Arts who do not want a career in this field.

The major requirements for the B.S. or B.A. degree in speech and hearing science are as follows:

- 3.05 Introduction to Speech and Hearing Processes and Disorders
- 3.01 Articulatory and Acoustic Phonetics
- 3.10 Anatomy of Speech and Hearing Mechanisms
- 3.22 Fundamentals of Speech Science
- 3.11 Introduction to Hearing Science
- 3.17 Psychology of Language I
- 3.18 Psychology of Language II
- 3.25 Introduction to Auditory Physiology
- 3.25 Auditory Physiology
- 3.15 Psychological and Educational Statistics
- 3.01 General Psychology
- 3.11 Personality Psychology

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 M.A. with professional emphasis designed for students who may not intend initially to enter the professions. The M.A. program has a background of undergraduate courses in speech and hearing science, psychology, and 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 considered prerequisite to graduate study. The results of these examinations provide the student and his 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.
This may be accomplished by any combination of enrollment in seminar (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 progress, required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. degree with professional emphasis are not required to complete a thesis, although all students demonstrating reasoning and interest are encouraged to do so. All candidates preparing for the M.A. degree without thesis 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 I below and, depending on specific area of emphasis, the coursework under 2, 3, 4, or 5 below.

1. All Majors

*31111 Neurological Processes of Speech and Language 3 s.h.
*31212 Articulation Disorders 3 s.h.
*31115 Hearing Loss and Audiology 4 s.h.
*31116 Developmental Language Disorders 3 s.h.
*31117 Rehabilitation Audiology 3 s.h.
*31100 Counseling Theories and Techniques 3 s.h.

2. Speech-Language Pathology, General Clinical Emphasis

Courses listed under 1 and:

31213 Shuffling 3 s.h.
31213 Voice Disorders 2 s.h.
31213 Neurology of Speech and Language 3 s.h.
31213 Child Paideia and Related Disorders 2 s.h.
Additional practicum, research, and elective courses

3. Speech-Language Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools

Courses listed under 1 and 2, and:

71014 Remedial Methods in Speech and Hearing 2 s.h.
71012 Laboratory Practice in Elementary School 5 s.h.
Additional practicum, research, and elective courses

4. Audiology, General Clinical Emphasis

Courses listed under 1, and:

31213 Foundations of Laboratory Instrumentation 3 s.h.
31213 Manual Communication 1 s.h.
31213 Clinical Audiology and Hearing Aids 4 s.h.
31213 Auditory Audiology 3 s.h.
31213 Auditory and Hearing Aids 2 s.h.
31213 Audiology Procedures for Special Populations 4 s.h.
Additional practicum, research, and elective courses

5. Audiology, School Hearing Clinician

Courses listed under 1, 2, and 3.

71014 Remedial Methods in Speech and Hearing 2 s.h.
71012 Laboratory Practice in Elementary School 3-5 s.h.
Additional practicum, research, and elective courses

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in locations other than the public schools. Students who meet the requirements listed above for the M.A. degree with professional emphasis also meet the academic requirements for the license in Iowa, as well as to most other states.

Students preparing for clinical positions in public schools must meet the certification requirements of the states in which they plan to work. Completion of the following courses, in addition to those listed under 3 or 5 above, will also fulfill the certification requirements of Iowa and most other states.

71130 Human Relations for the Classroom Teacher 3 s.h.
Education electives 8 s.h.

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for scholars/researchers interested in communication processes and their disorders. Students with diverse backgrounds to the field, and both behavioral and biological sciences are encouraged to apply and develop their work in an atmosphere of interdisciplinary research.

The program reflects the broad interests and diverse backgrounds of the faculty. Workers in speech, language, hearing, cognitive, psychology, physics, psychology, linguistics, and bioengineering are committed to an interdisciplinary approach to questions at every level of the speech and language production/reception system. The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in the field of speech-language pathology and audiology, communication science, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. There are no required courses for the Ph.D. degree, rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is developed from the courses offered in this department, those in other areas of a thesis, engineering, psychology, mathematics, statistics, physiotherapy, neurology, anatomy, and others, and special reading and research experiences.

The degree of Ph.D. is offered by this department primarily for the Ph.D. student, including the following areas of emphasis in specific areas of research and selected publication, the faculty are encouraged to write the department the thesis.

4.110 Fundamentals of Laboratory Instrumentation 3 s.h.
31213 Principles of Voice Production 3 s.h.
31213 Language Acquisition 3 s.h.
31320 Advanced Laboratory Instrumentation 3 s.h.
31213 System and Signal Theory for Speech and Hearing Sciences 3 s.h.
31213 Speech Perception 3 s.h.
31213 Acoustics and Biomechanics of Speech 3 s.h.
31320 Physiology of Speech Production 3 s.h.
31213 Psycholinguistics 3 s.h.
31213 Psycholinguistics 3 s.h.
31213 Psycholinguistics 4 s.h.
31213 Speech Perception 4 s.h.
31213 Digital Signal Processing 5 s.h.
31130 Phoenuis 6 s.h.
31320 Seminar: Articulation and Language Disorders 2 s.h.
31320 Seminar: Phonetics 2 s.h.
31320 Seminar: Speech and Language Disorders of the Mentally Handicapped 2 s.h.
31320 Seminar: Voice 2 s.h.
31320 Seminar: Clinical Paideia
Admission and Appointments
The Department of Speech Pathology and Audiology has procedures for admission and graduate appointments that supplement those stipulated by the Graduate College. A brief summary of the requirements is presented below. More detailed information is available from the department chair.

Application Form
All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the departmental information form, which can be obtained from the department chair.

Admission to the M.A. Program
The department bases M.A. admission on the applicant's credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.0 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.0.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Late applications will be considered only in special circumstances and only if they are received no later than the preceding November 1.
Auditions

Auditions for departmental productions are held at the beginning of 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 rehearsal.

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 modifying their advisor. It is the responsibility of the faculty in each interested area to set their own criteria for evaluation and to determine the student’s qualification for advanced standing. Students who want to be considered for special emphasis programs must seek the guidance of the undergraduate program chair.

Transfer Students

Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate the basic requirements of the theatre department and the University before they may undertake advanced level electives or seek admission to a special emphasis program.

Minor Requirements (required of all theatre arts majors)

483 Art of the Theatre 3 s.h.
484 Film and Television 3 s.h.
485 Stagedread (Prerequisite: 484)
486 Costume Design 3 s.h.
486 Play Script Analysis 3 s.h.
486a Period Production 1 s.h.
493 Production 3 s.h.
496 Seminar 3 s.h.
498 Theatre History 1 3 s.h.
498 Theatre History 2 3 s.h.
Any two dramatic literature courses 6 s.h.

Special Emphasis Program Requirements:

Acting Emphasis:

492 Acting I 3 s.h.
492 Acting II 3 s.h.
492 Acting III 3 s.h.
492 Acting IV 3 s.h.
492 Stage Combat 2 s.h.
492 Voice for the Actor 3 s.h.
492 Movement for the Actor 3 s.h.
492 Stage Makeup 3 s.h.

Directing Emphasis:

497 Directing I 3 s.h.
497 Directing II 3 s.h.
497 Directing III 3 s.h.
497 Directing IV 3 s.h.
497 Stage Combat 2 s.h.
497 Voice for the Actor 3 s.h.
497 Movement for the Actor 3 s.h.
497 Stage Makeup 3 s.h.

Playwriting Emphasis:

In addition to the minimum requirements for theatre arts majors, the following are required:

462 Basic Playwriting 3 s.h.
467 Advanced Playwriting 3 s.h.
495 Elements of Design 3 s.h.
4922 Acting II 3 s.h.
4979 Directing I 3 s.h.
and three of the following: 5 s.h.

4971 Directing II 3 s.h.
4914 Contemporary Theatre 3 s.h.
4915 Playwrights Ensemble 3 s.h.
4913 Adaptation 3 s.h.
4914 Playwriting for Other Media 3 s.h.
4916 Dramaturgy 3 s.h.
4919 Playwriting: The Documents 3 s.h.
Final project: A full-length play or its equivalent in shorter works. One five-minute scene must be staged for the faculty.

Graduate Program

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, costume direction, production, stage management, or other aspects of theatre arts may apply for admission to the graduate degree program in theatre arts. Admissions is based on audition, performance, and/or a portfolio of relevant artistic work. In addition to undergraduate record, other records or proof of artistic accomplishment, and letters of recommendation, six semesters in residence and the requisite number of graduate credits in the individual programs required. Students must regularly for admission every year. Substantive creative work of high quality is expected of all candidates.

Facilities

The University of Iowa has one of the finest educational theatre complexes in the country. The Theatre Building offers three theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Meade Theatre, a continental style, 477-seat proscenium playhouse, is one of the finest small theatres of its type in the United States. Theatre A is an intimate 200-seat "black box" production space. Eleven moveable scenic units allow quick modification of space and audience relationship. Theatre B, a fixed-seating, end-stage theatre, seats 148. This small studio theatre is designed for musical productions that do not emphasize technical complexity. All three theatres are equipped with state-of-the-art electronic lighting control and sound reproduction systems.

In addition to special classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The "Improv room" is for study of human movement and motion by acting students. The "Intelligent classroom" is equipped with instructional resources such as videocassette, laser disc, closed circuit and cable television, audio systems, and computer instruction. The "Intelligent theater" is equipped with computer-assisted design programs. To support its continual production schedules and to provide students with an appropriate range of experiences, the department maintains several shops for building, painting, mounting, and storing scenery, costumes, and properties. Using these shops, student shops are taught in work in metal, plastics, canvas, and wood. Theatre Building facilities also expose students to state-of-the-art computerized lighting and multi-channel sound systems.

Courses

Primarily for Undergraduates

498 Cooperative Education Internship 6 s.h.

491 Art of the Theatre 3 s.h.

491 History of the Theatre 3 s.h.

492 Theatre and Society 3 s.h.

493 Comparative Theatre 3 s.h.

494 Theatre and the Mind 3 s.h.

495 Shakespeare 3 s.h.

496 Basic Acting 3 s.h.

497 Directing I 3 s.h.

498 Movement for the Actor 3 s.h.

499 Production 3 s.h.

500 Seminar 3 s.h.

501 Stage Combat 2 s.h.

502 Voice for the Actor 3 s.h.

503 Movement for the Actor 3 s.h.

504 Stage Makeup 3 s.h.

505 Acting II 3 s.h.

506 Acting III 3 s.h.

507 Acting IV 3 s.h.

508 Stage Combat 2 s.h.

509 Voice for the Actor 3 s.h.

510 Movement for the Actor 3 s.h.

511 Stage Makeup 3 s.h.

512 Acting I 3 s.h.

513 Acting II 3 s.h.

514 Acting III 3 s.h.

515 Acting IV 3 s.h.

516 Movement for the Actor 3 s.h.

517 Voice for the Actor 3 s.h.

518 Movement for the Actor 3 s.h.
participate in an interdisciplinary transportation research program. 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 awards 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, including a 30-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, mathematics, and operations research, without direct course credit to the degree program.

A typical master's level program includes the following courses:

**First Semester**
53-262 Urban Transportation Planning
120-252 Transportation Policy and Planning
44-124 Methods of Transportation Analysis
53-269 Transportation Programming Seminar
Technical Elective

**Second Semester**
53-163 Transportation Systems Analysis
102-281 Problems in Transportation and Land Use
44-236 Travel Demand Modeling
One of the following courses:
53-199 Research: Civil and Environmental Engineering M.S.
Thesis
Planning Electric
Transportation Course

**Third Semester (normally summer)**
53-199 Individual Investigations: Civil and Environmental Engineering
53-199 Research: Civil and Environmental Engineering M.S.
Thesis
Technical Elective

Technical electives are advanced courses in engineering operations research, computer-aided design, or economics. Specific course requirements are sufficiently flexible to conform to a student's graduation schedule and desired area of specialization. Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Geography

The Department of Geography offers the M.A. and Ph.D. degrees with a specialization in transportation systems analysis. The transportation specialty shares 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 skills relevant to transportation and urban and regional analysis. It also helps students develop an appreciation of political and organizational concerns affecting transportation systems and of the exigencies of practical problem solving. M.A. students typically pass 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 awarded 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**
53-163 Statistical Methods in Transportation Development
44-201 Geographical Analysis I
44-202 Geographical Analysis II
44-230 Research Seminar: Staff

**Second Semester**
53-164 Methods of Quantitative Economics
102-261 Problems in Transportation and Land Use
44-202 Geographical Analysis II
44-200 Research Seminar: Staff

**Third Semester**
53-203 Microeconomics I
33-206 Urban Transportation Planning
44-134 Methods of Transportation Analysis
44-230 Research Seminar: Staff

**Fourth Semester**
44-236 Travel Demand Modeling
34-170 Deterministic Operations Research
44-205 Regional Development: Policy and Planning I

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 transportation theory 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 sectoral major in transportation. Students complete an integrated core curriculum during the first year, the core consisting of courses in planning economics and public finance, analytic methods, planning theory, and collective decision making, law, and information presentation. The second year is devoted to a sectoral major, such as transportation, wherein core concepts are applied to a chosen area of specialization. The planning curriculum is intended to provide students with the capability to examine policy issues in transportation, devise workable options, evaluate these optional courses of action, and work toward implementation of policy solutions.

Planning courses 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 student option is selected, up to 6 semester hours of sectional major credit are awarded. Students may elect to complete an additional 2 semester hours of course work in any of these options. Bringing the total to 90 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:

44:114 Methods of Transportation Analysis 3 s.h.
53:262 Urban Transportation Planning 3 s.h.
Planning Elective 3 s.h.

Fourth Semester

102:261 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.
44:255 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.
102:250 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.
102:296 Development Finance 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

### Adjunct Lecturers

Part A. C. Catlin, Karen A. Funkhouser, Andrew J. McElroy

### 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 diverse areas as 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 administrative located in the Graduate College, the program has benefited from an approach to developing its curriculum 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, biology, history, classics, and philosophy. Literally, 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 situations.

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 several years' graduates took positions in all geographic regions of the United States and in several foreign countries.

### Curriculum Structure

The planning curriculum comprises a 48-semester-hour core, a 12-semester-hour master's (plus internship) program encompassing two academic years. This includes 27 semester hours of core courses, 9 semester hours of sectional major courses 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 for resolving these issues, as well as the professional skills (e.g., report writing, presentations and briefings, team management) that allow them to function effectively in various organizations and professional contexts. Students thus become well-prepared in such areas as economic theory, quantitative methods, information presentation techniques, and approaches to citizen involvement.

### Core Curriculum

At the heart of The University of Iowa planning program is a unique and integrated core curriculum, which occupies the first academic year. Its purpose is to provide a rigorous foundation for analyzing social problems and public policies.

The function of the core is to develop an understanding of the institutions—the social, economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices; a capability for identifying social goals and normative criteria for evaluating public policies; and analytic capabilities—both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and qualitative—in total, the core accounts for 27 semester hours.

Courses in the core curriculum are as follows:

#### First Semester

102:203 History and Theories of Planning 3 s.h.
102:203 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 4 s.h.
102:211 Intermediate Analytic Methods 3 s.h.
102:215 Field Problems in Planning 3 s.h.

Courses in the first semester are derived primarily from traditional disciplines (particularly economics, law, and statistics) together with an introduction to the theories and practice of planning. Later courses teach students to select and evaluate information and to develop conclusion 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 Secular Major

The second year of the program is directed toward developing an area of concentration, the secular major, building on the concepts and skills developed in the core by applying them to a specific production area. Students fulfill the secular 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, courses are supported by course offerings and faculty within the planning program, transportation, housing and community development, environmental planning, infrastructure planning, and economic development. Other secular 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 secular majors that students have developed include land use, public utility and energy planning, urban management, and historic preservation.

The balance between core courses, a secular major, and elective courses allows students the opportunity to acquire a rigorous and devoted 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 demonstrate an understanding of fundamental concepts in the core; application of core concepts to the students' personal and professional development; substantive knowledge of issues, institutions, and policies; and the ability to analyze and synthesize data. The portfolio generally is made up of revised and polished versions of research papers and project reports for courses. The portfolio must be approved by a final exam committee consisting of at least three faculty members.

A thesis is not required, although a student may petition to write one. Students may register for up to 8 semester hours of thesis credit. In addition, up to 4 semester hours of readings may be taken to develop a thesis topic and prepare a literature review. Three of the readings hours may be applied towards the secular major requirement, and the thesis substitutes for the concentration.

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 36 semester hours.

Joint Programs

Law

The Urban and Regional Planning Program and the College of Law cooperate in administering a program that satisfies the degree requirements leading to a J.D. in law. The program requires four years to complete (or less if the student chooses the accelerated law program). This is a reduction of one academic year from the total requirements of the two programs taken separately. Separate admission to each academic unit is required.

Engineering

A special program involving the College of Engineering and the Urban and Regional Planning Program enables a student to acquire a B.S. in engineering and an M.A. in planning in a total of five academic years. In this accelerated program, course work is reduced by one academic year from the separate requirements for the two degrees. Admission to the special program can be applied for by undergraduate students in engineering.

Preventive Medicine and Environmental Health

A joint master's degree option exists between the Urban and Regional Planning Program and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This 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 are 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 economics by enrolling in the joint program in urban and regional planning and 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 48 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 economics. The certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. For more information see "Transportation Studies" in this section of the Catalog.

Financial Aid

Students in the Urban and Regional Planning Program may receive financial support through a variety of sources and arrangements: tuition scholarships, program teaching or research assistantships, contract or grant-funded research assistantships, and internships in local agencies or firms. Such opportunities typically require 10 hours of work per week, under the direction of a faculty member or professional planning staff. Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interest. The program has been successful in providing support to most students.

Admission

Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration.
Admission is based on Graduate Record Examination (GRE) Aptitude Test scores (quantitative, verbal, and analytical), letters of recommendation, and undergraduate achievement.

Applicants should submit the application form and the application materials early in the spring for fall admission (though applications are still accepted until July 15), or by December 15 for spring admission. Full admission is preferred.

Courses

101:00 Cooperative Education Internship 1 a.h.

101:10 Introduction to Planning and Policy Development 3 a.b.

101:10 Emergence of urban problems and current policies, the role of government and policy makers in the resolution of social concerns. Financial planning, housing, resource development in urban and environmental quality.

101:10 Introduction to Environmental Planning 3 b.

101:10 Identification of the effects of human activity on the environment: evaluation of the economic, political, and cultural context of environmental problems; historical development of environmental laws and policies for protection of the environment.

101:15 Regional Development Policy and Planning 3 a.


101:15 Introduction to Transportation 3 a.

101:15 Overview of urban and transportation systems, rail and highway service costs, the role of government and policy makers in the resolution of social concerns. Financial planning.

101:20 Methods of Transportation Analysis 3 a.b.

101:20 Interaction between urban form and transportation, policy makers in the resolution of social concerns. Financial planning, housing, resource development in urban and environmental quality.

101:32 Special Problems in Planning and Policy Development 3 a.b.

101:32 Social, economic, political and environmental factors in the resolution of social concerns. Financial planning, housing, resource development in urban and environmental quality.

101:32 Urban Transportation 3 a.b.

101:32 Public policies, institutions, planning, management, production, pricing, distribution of land and urban highway services, energy conservation, city case studies, urban traffic costs. Prerequisites: 101:01 and 101:12. Same as 101:32.

101:32 History and Theory of Planning 3 a.

101:32 History of U.S. urban growth and change as a reflection of social and economic forces: attention planning philosophies and the role of the planner over time.


101:32 History of urban regulations and the resolution of social concerns. Financial planning, housing, resource development in urban and environmental quality.

101:32 Social and Environmental Policy Analysis 3 a.b.

101:32 Fundamentals of planning and policy evaluation, and the resolution of social concerns. Financial planning, housing, resource development in urban and environmental quality.


101:32 Case Study Problems in Planning and Policy Development 3 a.b.

101:32 Case studies of urban and regional planning and policy development issues, evaluation and analysis of urban, regional, and national policies.

101:32 Environmental Policy and Planning 3 a.

101:32 Analysis of the impacts of urban and regional planning and policy development on the environment, evaluation and analysis of urban, regional, and national policies.


101:32 Analysis of the impacts of urban and regional planning and policy development on the environment, evaluation and analysis of urban, regional, and national policies.

101:32 Transportation Policy and Planning 3 a.

101:32 Analysis of the impacts of urban and regional planning and policy development on the environment, evaluation and analysis of urban, regional, and national policies.

101:32 Problem in Transportation and Land Use 3 a.

101:32 Problems in transportation and land use. Individual policies on public or local or state transport systems, planning for a future population growth, evaluation of transportation systems, evaluation of transportation systems, evaluation of urban systems to aid in decision-making processes and strategies.

101:32 Intermodal Transportation and Land Use 3 a.

101:32 Analysis of the impacts of urban and regional planning and policy development on the environment, evaluation and analysis of urban, regional, and national policies.


101:32 Analysis of the impacts of urban and regional planning and policy development on the environment, evaluation and analysis of urban, regional, and national policies.

101:32 Information Presentation 3 a.

101:32 Analysis of the impacts of urban and regional planning and policy development on the environment, evaluation and analysis of urban, regional, and national policies.
Women's Studies

Undergraduate Study

Graduate Study

Communication Studies

Sociology

Psychology

Health, Physical Education, and Recreation

American Studies

Sociology of Family

Health Communication

Undergraduate Course Listings

The Department of Women's Studies offers a variety of courses in women's studies across disciplines. The department focuses on the analysis of gender, race, and class in the history, culture, politics, and economics of the United States and around the world.

Courses are offered in the following areas:

- Gender and Society
- Women's History
- Women's Literature
- Women's Studies

Graduate Program

The Women's Studies Program offers a Master's degree and a concentration in women's studies. The program is designed to provide a comprehensive understanding of the experiences and contributions of women in society.

Courses offered include:

- Feminist Theory
- Gender and Social Movements
- Women and Work
- Women and Politics

Associated Courses

The Department of Women's Studies also offers associated courses that are offered in other departments, providing a multidisciplinary approach to women's studies.

Courses include:

- Women's Health
- Women's Art History
- Women's Political Science

Information on faculty members and recent graduates is available on the Women's Studies website.

Liberal Arts/Urban and Regional Planning

Minor in Women's Studies

Courses in Women's Studies are designed to provide students with a broad understanding of the role of women in society.
Courses

Core Courses

131.168 Introduction to Women's Studies 3-4 h.
Introduction to the historiographical study of women's lives, including work, family, sexuality, political and social change, race, class, and cultural traditions.

131.188 Topics in Women's Studies 3 h.
Topics vary, may be repeated with consent of instructor.

131.191 Feminist Theory 3 h.
Survey of historical and contemporary feminist theories, their impact on the study of gender, and the continuing transformation of society and culture; maintains a variety of methodological approaches and political perspectives, major cases, and controversies.

131.170 Independent Reading and Research in Women's Studies 1-6 h.
Supervised reading and research in women's studies; on a topic not covered in regular curriculum.

Cross-listed courses

131.100 Women in American Culture 3 h.
Topics include feminist women in America; women and culture, American literature, American history, American politics, American law, American art, American work, women's popular culture, and Indiana lives and culture. Same as 161.100.

131.151 The World of Women and Literature 3 h.
Course on the writing of women is explored through their creative works, in an attempt to understand the complexity of their oppression and their heroic struggle against racism, classism, and sexism. Same as 131.151.

131.192 Physiological Research on Women in Sport 2-3 h.
Physical, physiological, and psychological impact on women's participation and success in team and individual sports. Same as 25.252.

131.180 Women and Society 3 h.
Examines and explains the norms and status of women in society, gender relations, sex role socialization, theories about men and women of various societies, and the role of men and women in society. Same as 20.180.

121.111 Religious and Women 3 h.
The study of sacred and his placement in biblical narratives, law, wisdom texts, Gospel, and optima, contingency impact. Same as 211.111.

121.122 Black Women in America 3 h.
History of Black women in American society, relationships between epistemological images and actual role. Same as 212.122.

121.151 The Sexes and Film 3 h.
Survey of American films from 1895 to 1975, centers on the theme of the sexes and how these images relate to society, Same as 215.151.

121.153 Sociology of Women in Sport 2-3 h.
Personality analysis of girls and women's sport experience, including sociological views on the role of sport, social change in women's sociological studies, social perspectives of athletics, and feminist approaches to sport. Same as 215.153.

121.154 Women's Role: Cross-Cultural Perspective 3 h.
Social, economic, and political roles of women around the world, as analyzed in six units, with emphasis on culture change, roles for women in various cultures. Same as 215.154.

121.180 Regional Women Writers 3 h.
Same as 91.180.

121.181 Women's Literature 3 h.
Same as 91.181.

121.182 Theses and Models in Literature by Women 3 h.
Same as 91.182.

121.184 Economic and Political Development of Women 3 h.
Structure and development of women's roles in Latin America, Asia, and Africa and women's economic and political development are examined. Same as 131.184.

121.190 Changing Concepts of Men in 3 h.
Same as 91.190.

121.171 Women in America: Colonial Period to 1976 3 h.
American women through the lens of migration, colonial interactions of biology, economics, politics, and ideology. Same as 217.171.

121.172 Women in America: 1976-Present 3 h.
Explore the impact of the feminist movement on the empowerment of American women, the dynamics of gender roles, and educational patterns. Students may write a history of women in their own families. Same as 217.172.

121.195 Poetry by Women Writers 3 h.
Same as 91.195.

121.201 Women's Prose by Women Writers: The Essay 3 h.
Survey of autobiographies, largely contemporary; essays on race, with attention to the written and written in classic and contemporary essays on women's role in society and the role of the essay in society. Same as 220.201.

121.196 Women's Literature and Culture 4 h.
Same as 91.196.

121.207 The Cultures of American Women 3 h.
Examines the variety of women's experiences in America, emphasizing relationships between individual lives and broad social and cultural context. Same as 220.207.

121.218 Women and Therapy 3 h.
Examines phenomenological and psychological theories that focus on women's therapy or therapy for women. Same as 92.218.

121.254 History of Women in Sports 3-2 h.
Same as 225.254.

121.270 Ending in American Women's Literature 2 h.
Same as 270.270.

121.285 Women and Social Change 2-3 h.
Examine the role that women play in social change, both national and international. Hash examination of the role of women in social change, both national and international. Same as 228.285 or consent of instructor. Same as 225.285.
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 and the activities of 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 South Business Development Center.

Undergraduate Program

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all six departments. B.B.A. students complete background studies either in the College of Liberal Arts at The University of Iowa or at 40+ other institutions, and usually enter the College of Business Administration as a junior.

The college’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 15 semester hours in business courses and at least 48 semester hours in nonbusiness courses. Limited specialization is effected through the student’s designated major.

The last 30 (or 45 of the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration and at least 9 semester hours of credit in the student’s major must be earned at The University of Iowa.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all course work, in all course work attempted at the University, in all business course work attempted, in all business course work attempted at the University in all course work attempted in the major, and in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common core requirements:

- Rhetoric: 101 and 102, or 103 8 s.h.
- 22M:17 and 22S:8 Quantitative Methods I and II 8 s.h.
- 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 to 6 s.h.
History and government 3 s.h.
English: (1) English 1A, 1B, or 101 3 s.h.
Foreign civilization and culture 3 s.h.
Humanities (excluding English) 3 s.h.
Psychology/sociology 3 s.h.
Computer literacy 3 s.h.
Computer literacy 3 s.h.
Statistical analysis 3 s.h.
6G:20 Introduction to Law 3 s.h.
6I:100 Introductory Financial Management 3 s.h.
6L:100 Administrative Management 3 s.h.
6M:100 Introduction to Marketing 3 s.h.
6Q:100 Business policy 3 s.h.
6R:179, or 6S: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 Tax 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 for:

Production Management, for 6L:100 Administrative Management.

Minors

Non-Business Minors

An undergraduate student in the College of business administration may elect to complete a minor in another college of the University. For example, a student interested in international business might choose a foreign language as a minor. For the minor requirements, the student should consult with an advisor in the relevant department. To have the minor recorded on his or her transcript, the student must complete the "minor" section on the B.B.A. degree application form before submitting it to the Registrar.

Business Minors

Students majoring in another college of the University may elect a minor in business administration. The courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed at The University of Iowa. A grade-point average of at least 2.0 is required on all courses taken for the minor and on all of those courses taken at Iowa.

- A computer programming course
  - Business calculus (22M:11, 22M:25, or 22M:35) 3 s.h.
  - Statistics (222:8 or 22S:10) 3 s.h.
- 6E:1 Principles of Microeconomics 3 s.h.
- 6E:2 Principles of Macroeconomics 3 s.h.
- 6A:1 Introduction to Financial Accounting 3 s.h.
- 6A:2 Introduction to Managerial Cost Accounting 3 s.h.
- 6M:100 Introduction to Marketing 3 s.h.
- 6I: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 requirements for the minor in business administration should indicate a business minor on the application for degree card, which is filed in the Registrar’s Office in the student’s final semester.

Recognition for Academic Achievement

Dean’s List

Students who achieve grade-point averages of 3.5 or above during a given semester on at least 12 credits of graded work and who have no hours of 0.0 or 0.0 are recognized by exclusion 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 warnings of 1 or 0 those semesters will be 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).
Prebusiness students interested in the Honors Program are encouraged to participate in the College of Liberal Arts Honors Program until they are admitted to the College of Business Administration. This will permit them to take advantage of the Honors Program before they begin their House Honors Center. They are also encouraged to participate in the College of Liberal Arts Honors Symposium, 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 first day of classes of the semester they plan to enroll. 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 upon 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 educational resources.
No more than 60 semester hours or equivalent of transfer credit will be accepted for a student transferring from a two-year institution. Transfer 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 of the college through the CLEP examinations. Examinations are available from the Liberal Arts Office of Academic Programming.

Maximum Schedule
Course schedules of more than 18 semester hours for a semester or 96 semester hours for a summer session require approval of the dean.

Adding and Dropping Courses
Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with the approval of the adviser 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 adviser 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 days to repeat, or pass-nonpass basis with the consent of the adviser and instructor. However, a student may not count more than 8 semester hours of pass-nonpass credit in the last 60 semester hours of course work. A student must be in good academic standing to be eligible for pass-nonpass options. The maximum of two pass-nonpass courses may be taken in one semester.

Courses that are taken to satisfy the common business requirements may not be taken pass-nonpass. Any courses in the student's major. Pass-nonpass grade registration must be completed during the first three weeks of a semester or the first two weeks of a summer session. For courses taken on a pass-nonpass basis, an earned grade of C or above is recorded as a P, an earned grade of D or F is recorded as an N.

Second-Grade-Only Option
A student may elect to repeat a course with only the new grade being computed into his or her grade-point average. This option can be elected only prior to the time of completion of a course for which the repeated course is prerequisite. This option 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 file the necessary form in 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 four weeks after the end of the second week of the summer session). Liberal Arts Office of Academic Programming majors must adhere to accord-grade-only option procedures and deadlines set by the Liberal Arts Office of Academic Programming.
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 N.A. 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, previous experience, or equivalent course work of high quality taken as part of an undergraduate degree program. A minimum of 24 semester hours of course work must be completed in residence at the University of Iowa after admission to the M.B.A. program.

Accelerated Professional Track

Highly qualified undergraduate students in the colleges of Liberal Arts or Engineering at the University of Iowa who are admitted to the Accelerated Professional Track (APT) program toward the M.B.A. degree. These students can take the M.B.A. foundation courses as electives in their undergraduate 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 educational experience as part of 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 completed within the last 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 3.5. Further information on the APT program is available from the Academic Programs Office, 121 Phillips Hall.

Foundation Courses (24 semester hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A102 Financial Accounting—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6E110 Consumer and Firm Behavior</td>
<td>3</td>
</tr>
<tr>
<td>6E111 National Income Analysis—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6E119 Managerial Finance—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K103 Computer Methods—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K197 Quantitative Methods—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6L105 Management of Organizations—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6M236 Marketing Management—M.B.A.</td>
<td>3</td>
</tr>
</tbody>
</table>

In the M.B.A. integrated core courses, students continue the broad study begun in the sequence of foundation courses listed above and pursue more advanced study associated with their own career objectives. Following are the integrated core course requirements:

Integrated Core (21 semester hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6L198 Society, Law, and Business—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>5A214 Managerial Accounting—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K261 Administrative Science I—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K265 Administrative Policy—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6L265 Administrative Policy—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K271 Statistical Methods—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K273 Managerial Economic Theory—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>6K276 Operations Research—M.B.A.</td>
<td>3</td>
</tr>
<tr>
<td>Electives (15 semester hours)</td>
<td></td>
</tr>
</tbody>
</table>

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, 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 on Fridays and Saturdays. Participants progress through the program together as a single group.

Additional information on the program, fees, and application procedures may be obtained by writing to the Academic Programs Office, College of Business Administration.

Master of Arts

The Master of Arts degree program in business administration is designed for students seeking specialization in one of several areas of business administration. It permits a research emphasis that qualifies students for research or teaching positions or employment in business.

The program is available with or without thesis and is flexible, permitting specialization according to students' interests and objectives. Students may select a major in administrative studies, finance, industrial relations and human resources, insurance, management information systems. The minor may be developed as more 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 Colleges 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 legal course. Graduates work for profit or nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major area</td>
<td>9</td>
</tr>
<tr>
<td>Minor area</td>
<td>6</td>
</tr>
<tr>
<td>Economic theory and/or organizational behavior</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Thesis</td>
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</tr>
<tr>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>

Requirements for the Master of Arts degree without thesis include:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Major area</td>
<td>12</td>
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<tr>
<td>Minor area</td>
<td>6</td>
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<tr>
<td>Economic theory and/or organizational behavior</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Research methodology</td>
<td>3</td>
</tr>
<tr>
<td>Research reports (two)</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
</tr>
</tbody>
</table>
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 Admissions Office, Graduate College of Business Administration.

Doctor of Philosophy
The Ph.D. program in business administration is designed for students preparing for academic positions in research and teaching or in business and government. The program is flexible, permitting students to choose an area of specialty. Students are expected to have a master’s degree in business or related fields. Appropriate graduate work in economics, industrial relations, marketing, accounting, finance, management, or organizational behavior is required.

Quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

Core Courses
Core courses are designed to develop competence in research and provide necessary background for study in more specialized courses. Graduate courses are offered as follows: behavioral sciences (interdisciplinary courses); economics (6 semester hours); industrial relations; international studies; management; management science; marketing; organizational behavior.

Minor Area of Study
A minimum of six semester hours of approved doctoral-level courses must be completed in the concentration area.

Overall Program Requirements
A minimum of 62 semester hours of accepted graduate credit, including at least 18 semester hours of approved graduate-level courses.

Doctoral Examines
Students must successfully complete a written examination in one of the following areas: accounting, finance, management, marketing, organizational behavior.

Comprehensive Examinations
Students must successfully complete a written examination in one of the following areas: accounting, finance, management, marketing, organizational behavior.

Dissertation
A dissertation proposal must be presented before a faculty committee of three.

Application Information
A complete application file is required.

Graduate Record Examination (GRE) Aptitude Test scores may be submitted in place of GMAT scores in applications for the Ph.D. program in business administration. See the "Graduate College" section of the Catalog for more information.

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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.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 designed especially for programs of the college. The building contains seminar and conference rooms, a computer laboratory, an auditorium, and the Business Library. In addition to a wide range of classroom facilities, extensive research materials for business and economics are maintained in the Main Library, and the facilities of the Wieg Computing Center are available to all students. Additionally, students have direct access to a complete computer laboratory within the college. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to service user needs.

Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purposes of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research

The Institute for Economic Research engages in continuing economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The institute's main objectives are: to provide economic information, service, and advice on a continuous basis to business and to public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for Insurance Education and Research

The Institute for Insurance Education and Research is the college's continuing education arm in the field of insurance. The institute conducts schools and seminars throughout the year at the University of Iowa 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.

1566 Cooperative Education Internship
M.B.A. 9 s.h.

2612 Writing Skills for Business Students
1 s.h.

2612 Oral Communication Skills-M.B.A. 1 s.h.
One presentation skills for business courses.

Accounting
Head: John H. Smith
Professors: R.L. Barnes, Daniel W. Collins (Munroe Professor), Valdem C. Lenczler, John H. Smith
Associate professors: Douglas V. De Jong, Richard A. Greendale, Albert S. Schepanski
Assistant professors: C. Edward Arrington, John R. Frons, Thomas L. Lancaster
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, and for the second and third years of the professional program, from the Accounting Department.

The program is three years in length, with one full summer session. The student must complete 36 semester hours of course work, including the six courses required as prerequisites for admission to the College of Business Administration, 46:70 Computer Analysis, and 46:71 Statistical Analysis; and at least one of the courses listed under Program 1. A student must have completed one of the following: 46:61 Introduction to Financial Accounting and 46:62 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
6A:133 Financial Accounting I 3 s.h.
B.B.A. courses required or electives 3 s.h.
Summer Semester
6A:132 Financial Accounting II 3 s.h.
6A:115 Introduction to Taxation 3 s.h.
6A:175 Managerial Decision Models 3 s.h.
B.B.A. requirements or electives 6 s.h.

Second Year
Fall Semester
6A:130 Cost Accounting for Management Analysis and Control 3 s.h.
6A:144 Auditing 3 s.h.
6B:212 Microeconomics 3 s.h.
B.B.A. requirements or electives 6 s.h.
Spring Semester
6A:145 Financial Accounting III 3 s.h.
6A:188 Law and Business 3 s.h.
Policy requirement 3 s.h.
B.B.A. requirements or electives 6 s.h.

"Third Year"
Fall Semester
6A:220 Accounting Theory I 3 s.h.
6A:221 Advanced Tax Accounting for Graduate Students (or elective) 3 s.h.
6A:222 Accounting Information Systems (or elective) 3 s.h.
Elective 3 s.h.
Spring Semester
6A:221 Accounting Theory II 3 s.h.
6A:224 Research in Taxation (or elective) 3 s.h.
6A:226 Auditing and Regulation of Accounting Practice (or elective) 3 s.h.
6A:223 Citizenship (or elective) 3 s.h.
Elective 3 s.h.

"These courses are available upon admission to the third year of the program. At a minimum, students' third-year program may include 12 semester hours of 400-level accounting courses, including 6A:220 and 6A:221, 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, 115 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 price training in business or accounting. An individual program Auditing 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.192 Financial Accounting—M.B.A.
3 s.h.
6A.214 Managerial Accounting—M.B.A.
3 s.h.
6A.132 Introduction to Taxation—M.B.A.
3 s.h.
6A.131 Financial Accounting I—M.B.A.
3 s.h.
6A.132 Financial Accounting II—M.B.A.
3 s.h.
6E.160 Personal, Employment, and Production Theory—M.B.A.
3 s.h.
6B.195 Computer Methods—M.B.A.
3 s.h.
6B.194 Managerial Finance—M.B.A.
3 s.h.
6B.196 Marketing Management—M.B.A.
3 s.h.
6B.297 Quantitative Methods—M.B.A.
3 s.h.
6B.291 Advanced Statistical Methods—M.B.A.
3 s.h.
6B.148 Law and Business—M.B.A.
3 s.h.

These are the typical second-year courses:

6A.144 Tax and Business Decision—M.B.A.
3 s.h.
6A.225-226 Accounting Theory II—M.B.A.
6 s.h.
6A.270 Advanced Financial Accounting Problems—M.B.A.
3 s.h.
6A.261 Administrative Science I—M.B.A.
3 s.h.
6A.250 Administrative Policy—M.B.A.
3 s.h.
6B.278 Research Operations—M.B.A.
3 s.h.
6B.273 Advanced Managerial Theory—M.B.A.
3 s.h.
Graduate accounting electives 6 s.h.
6A.250 Accounting Issues Review—M.B.A.
3 s.h.

Doctor of Philosophy

See "Interdepartmental Graduate Program" at the front of this section of the Catalog.

Courses

Primarily for Undergraduates
6868 Cooperative Education Internship 0 s.h.
6821 Introduction to Financial Accounting 3.0 s.h.
A broad survey of contemporary accounting techniques and their applications with emphasis on those areas of accounting that may be most relevant to the student.

Primarily for Graduates
6823 Tax and Business Decision—M.B.A.
3 s.h.
Introduction to important tax concepts, emphasis on tax implications of business combinations, and dividend politics and personal tax considerations. Students will use computer programs to analyze tax consequences of investment, capital gains and losses, business activities.

6814 Managerial Accounting—M.B.A.
3 s.h.
Decision-making, budgeting, capital budgeting, cost-volume-profit analysis, product costing, break-even analysis, absorption costing, and marginal costing. Computer applications.

6826 Financial Accounting Reporting—M.B.A.
3 s.h.
Advanced financial accounting principles, emphasis on management decision making, and overall control systems. Computer applications.

6820 Auditing and Regulations of Accounting Profession—M.B.A.
3 s.h.
Focus on auditing as a control function, as well as its role in the enforcement of current financial reporting and audit practice. Acquaints students with current problems in auditing with governmental agencies that regulate or influence accounting practice. Offered spring semester. Prerequisites: 6E.204 and 6E.235.

6829 Accounting Information Systems—M.B.A.
3 s.h.
Design and evaluation of accounting information systems; emphasis on the acquisition and control of data. Offered fall semester. Prerequisites: 6E.217, 6E.218 and 6E.219.

6822 Contemporary Tax Problems—M.B.A.
3 s.h.
In-depth analysis of accounting principles and current current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.

6911 Advanced Accounting—M.B.A.
3 s.h.
Advanced current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.

6913 Advanced Accounting—M.B.A.
3 s.h.
Advanced current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.

6921 Advanced Accounting—M.B.A.
3 s.h.
Advanced current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.

6931 Advanced Accounting—M.B.A.
3 s.h.
Advanced current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.

6941 Advanced Accounting—M.B.A.
3 s.h.
Advanced current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.

6951 Advanced Accounting—M.B.A.
3 s.h.
Advanced current financial reporting and audit practice. Advanced study of problems and principles that are important in today's business environment. Offered spring semester. Prerequisites: 6E.235, 6E.204.
### Undergraduate Programs

The bachelor's degree programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and government agencies dealing with economic policy, regulation, and analysis. Economics is also regarded as excellent preparation for law 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 three undergraduate degrees in economics: the B.A. and B.S. degrees in the College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. and B.S. programs are designed for a well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management.

For descriptions of the B.A. and B.S. degree programs in economics, see "Economics" in the "College of Liberal Arts" section of the Catalog.

### Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including:

- GE 103 Microeconomics
- GE 105 Macroeconomics

### Graduate Programs

#### Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in environmental economics, urban and regional economics, international economics and finance, monetary and financial economics, economics of the public sector, health economics, economic planning and budgeting, business and managerial economics, or labor economics and labor relations.

Courses required for the M.A. degree include:

- GE 202 Statistical Methods in Econometrics
- GE 203 Price Theory
- GE 204 Macroeconomics I
- GE 205 Macroeconomics II

### Component Courses

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study.
study in a field and in courses that enable the student to understand the relationship between him or her specially and related fields. The student must achieve at least a 2.2 grade-point average in the major area courses.

Dissertation
The student must present and defend a dissertation prospectus during the third year. Admission to candidacy is granted upon successful defense of the prospectus. Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Courses
Primarily for Undergraduates
Note: 461 and 462 may be taken in either order or they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

460 Cooperative Education Internship 0.5-9.9

461 Principles of Microeconomics 3.0
Organizations and institutions of modern economic systems, role of markets, price, and competition in the process of economic welfare; alternative systems; international trade; Prerequisite: satisfaction of University requirement of 12.3 hours.

462 Principles of Macroeconomics 3.0
National income and output; international trade and payments; monetary and fiscal policy; monetary growth and development; international trade; The Federal Reserve System; University economic requirement of 6.8 hours.

467 Contemporary Economic Problems and Policy 2.5
Emphasis on comprehension and analysis of some economic events, problems, and policy fails. Notes to students who have tested 811 or 812.

469 Internship
Open to students desiring experience in the Washington, DC, area (or equivalent area). Students may receive credit for professional work in the public or private sector. Prerequisite: consent of instructor.

469V Finance, Employment, and Productivity Theory 3.0
Basic models, unemployment theory, wage and price determination under various conditions, national income model. Prerequisite: Principles of Microeconomics.

469W Business Fluctuations and Price Determination 3.0
Unemployment theory, wage and price determination under various conditions, national income model. Prerequisite: Principles of Microeconomics.

490S Principles of Economics 3.0
Economic theory as a basis of behavior of individuals and societies, the role of institutions in the economic and the social order of the market mechanism. Prerequisite: 461, 462, or 469.

490V Principles of Economics 3.0
Economic theory as a basis of behavior of individuals and societies, the role of institutions in the economic and the social order of the market mechanism. Prerequisite: 461, 462, or 469.

491 Labor Economics 3.0
Economic theories and policy for analyzing and influencing price and output in labor markets; labor market institutions and government policies; the economics of migration; the economics of unemployment; the economics of sex discrimination; the economics of race. Prerequisite: 461, 462, or 469.

493 Health Economics 3.0
Structure of American medical care industry and applications of economic analysis to the problems of production, pricing, and distribution; impact of insurance and the role of government and private health-care industries; Prerequisites: Principles of Health Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

497 Money and Banking 3.0
Principles of money and credit policy, and political economy with respect to the role of money in the determination of income, employment, and prices to economic and world economic systems; Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

498 Economics of the Government Sector 3.0
Economic functions of government in modern economic systems; economic decision making in government; budgetary process; The Federal Reserve System; money supply; government purchases of goods and services; taxation; locational movements of population, distribution of income, aggregate output and productivity. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

499 Political Economy of the Western Industrial Complex 3.0
Economic problems of the "industrial-industrialized" countries, economic thought; the development of the "complex" economy in the context of economic and social conditions, political economy, and social norms. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

495 International Economics 3.0
Financial problems and the exchange of payments among nations; international trade and payments; the dollar in international trade and payments; international economic relations; problems of capital and financial markets; Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

496 Economic Development 3.0
The problem of underdevelopment in the third world countries; measurement of economic development; Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

497 Food and Agricultural Policy 3.0
Analysis of the problems of food and agricultural policy formation; analysis of food and agricultural production; effects of electrification, improved irrigation, self-sufficiency, and technological development on agricultural production; the demand for agricultural products. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

499 Environmental Economics 3.0
Environmental degradation; the market response to pollution and natural resource depletion; Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

495 Regional and Urban Economics 3.0
Urban economics; the economic functions of the city; urban and regional economic development; urban and regional planning. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

495 Urban Transportation 3.0
Principles of urban transportation; planning, employing and organizing, and economic efficiency of urban transportation systems; characteristics of urban transportation systems. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

495 International Economics 3.0
International trade and payments; the dollar in international trade and payments; international economic relations; problems of capital and financial markets; Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

494 Analysis of Labor Markets 3.0
An introduction to the analytical tools and empirical techniques used in the analysis of labor markets. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

495 Economics of American Industries 3.0
Introduction to microeconomic and macroeconomic analysis of American industries; structure of manufacturing, competitive structure of markets and price behavior, and problems of production, distribution, and international trade. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.

495 Introduction to Transportation 3.0
Principles of urban transportation; planning, employing and organizing, and economic efficiency of urban transportation systems; characteristics of urban transportation systems. Prerequisites: Principles of Economics and one other course in the Prerequisites of 12.8 hours or consent of instructor.
Finance

Chairs:

L. Stevenson
Walter Kruse (Murray Professor)
W. Robertson (Canada Professor)
E. Anderson
R. Murray
E. Robertson

Co-Chairs:

J. Anderson
H. Robertson

Undergraduate Program

The undergraduate finance program deals with the theory, organization, and operations of the financial system from both social and managerial viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form.

Graduate Program

See "Interdisciplinary Graduate Programs" at the front of this section of the Catalog.
BUSINESS ADMINISTRATION/Finance

Basic case studies in risk management. Prerequisites: FIN 202 or consent of instructor.

FIN 205 Actuarial Principles of Life Insurance 3 s.h.
Study of the various insurance contracts and the factors influence premiums and reserves. Prerequisites: FIN 149 or consent of instructor.

FIN 209 Real Estate and Urban Land Economics 3 s.h.
Physical, legal, and economic fundamentals of real estate; analyses of residential and commercial mixes; mortgage financing; financial aspects of real estate investment and ownership. Prerequisites: FIN 149 and GEC 2 or consent of instructor.

FIN 210 Entrepreneurship and New Business Formation 3 s.h.
Introduction to entrepreneurship and new business formation. Focuses on the entrepreneurial process and decision-making process for both successful and unsuccessful startups. Prerequisites: FIN 209 or consent of instructor.

FIN 211 Managing the New or Small Business 3 s.h.
Small business ownership. Role of small business in the economy of the state and country. Problems pertaining to the small entrepreneur in the small enterprise. Prerequisites: permission of instructor.

FIN 229 Agrarian Property and Liability Insurance 2-3 s.h.

FIN 301 International Business 3 s.h.
Study of multinational business, international monetary systems, issues for world trade, development of international trade agreements, and effective international trade relationships. Prerequisites: GEC 2 and consent of instructor.

FIN 310 Topics in International Business 3 s.h.
Topics for students with special interest in international aspects of business, courses institutional study visits and financing international corporations. Prerequisites: FIN 209 or consent of instructor.

FIN 314 Real Estate Appraising 2-3 s.h.
Theory and practice in real estate appraising. Prerequisite: FIN 182.

FIN 333 Analysis of Financial Statements and Techniques 3 s.h.
Analysis of financial statements, techniques of strategic management, evaluation of capital structure, dividend policy, and the financing of new ventures. Prerequisites: FIN 182 or consent of instructor.

FIN 340 Special Topics 4 s.h.
Applicable special courses not regularly offered.

Primarily for Graduates

FIN 501 Managerial Finance—M.B.A. 3 s.h.
Study of financial aspects of the acquisition and management of financial and human resources for both profit and not-for-profit enterprises. Prerequisite: FIN 182.

FIN 515 Special Readings in Finance 3 s.h.
Individually arranged readings in selected topics in finance. Same topics may be offered more than once by different instructors.

FIN 524 W.R. Research Report 1-3 s.h.
For graduate students who desire independent study and who wish to prepare a major paper. Prerequisite: consent of instructor.

FIN 526 Contemporary Topics in Finance 3 s.h.
Analysis of financial issues and trends that are significant to both academic and professional practitioners and financial managers. Prerequisites: FIN 182 or consent of instructor.

FIN 527 Investment Management 3 s.h.
Examination of the economics of securities available for investment, analysis of financial statements, analysis of future economic trends and investment opportunities, and strategies used in the investment of securities. Prerequisites: FIN 182 or consent of instructor.

FIN 554 Real Estate Investment Management 3 s.h.
Introduction to real estate investment that includes analysis of structuring real estate investment, feasibility analysis, capitalization, syndication, and real estate financing, property risk characteristics, and alternative investment strategies. Prerequisites: FIN 182 or consent of instructor.

FIN 557 Financial Policy Decision-Making—M.B.A. 3 s.h.
Problem approaches to policy, structured problem and cases, decision models, current and current asset management, capital budgeting, dividends, mergers. Prerequisites: FIN 184 or equivalent.

FIN 561 Financial Markets 3 s.h.
Topics to include behavior of asset returns, tests of interest rate models, asset pricing models and theories of asset valuation, international finance, capital market, and financial institutions. Prerequisites: FIN 184 and FIN 202 or consent of instructor.

FIN 570 Portfolio Theory and Planning 3 s.h.
Introduction to the problems and techniques relating to the management of portfolio of financial institutional assets. Includes portfolio models, performance measurement, costs and taxes, and other relevant topics. Prerequisites: FIN 184 and FIN 202 or consent of instructor.

FIN 5816 Bank in Finance 3 s.h.
Prerequisite: consent of instructor.

FIN 5818 Capital Budgeting 3 s.h.
Introduction to capital budgeting techniques, role of capital structure in finance. Prerequisite: FIN 182 or consent of instructor.

FIN 5819 Financial Management of Financial Institutions 3 s.h.
Prerequisites: FIN 182, 184, and 202 or consent of instructor.

FIN 5921 Financial Institutions 3 s.h.
Prerequisite: consent of instructor.

FIN 5922 Corporate Finance 3 s.h.
Principles of valuation (DCF and CAPM), evaluation under certainty, stochastic volatility, and the role of capital structure, dividend policy, firm investment in perfect and imperfect capital markets, time value of money, and financial performance model. Prerequisites: FIN 184 and FIN 202.

FIN 5937 Advanced Financial Markets 3 s.h.
Optimal strategies, financial leverage, market efficiency, statistical information, performance analysis, capital structure, capital investment models, corporate finance, and performance measurement. Prerequisites: FIN 182 or consent of instructor.

FIN 5938 Advanced Empirical Finance 3 s.h.
Market efficiency tests, term structure theory tests, tests of asset pricing models, tests of capital market efficiency, and pricing models. Prerequisites: FIN 201 and an economic course.

FIN 5939 International Business 3 s.h.
Specialized topics related to the movement of business in foreign regions supported by international economic models. Prerequisite: consent of instructor.

FIN 5941 International Financial Management 3 s.h.
Specific topics in international business with emphasis on dual decision making authority (government and business) and foreign exchange and business operations. Prerequisite: FIN 202 or consent of instructor.

FIN 5970 Research in Finance 4 s.h.
Individually guided research projects on appropriate topics in finance. Prerequisite: consent of instructor.

FIN 5979 Thesis in Finance 3 s.h.
Prerequisite: consent of institution.

FIN 5989 Field Studies in Business Administration 2 s.h.
Substance knowledge regarding various aspects of business organization, operation, and management, research and application to real problems in on going business time. Individual and/or team of students prepare field studies under faculty supervision.

Industrial Relations and Human Resources

Chair: Richard C. Pappas
Professor: Norman T. Kefalian Peter Schodderer, Anthony V. Strohmeier (Marine Professor)
Associate professors: Jack T. Frenier, Daniel G. Calagher, Thomas P. Gigny, Nancy B. Houseman, Paul Louring, Michael K. Nestor, Richard Piggott, Thomas H. Stone, Duane E. Thompson, Julie F. West
Assistant professors: Rebecca A. Ellis, Cheryl L. Harrison

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

Students majoring in industrial relations and human resources study experience dealing with labor relations and human resources 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 are prepared for a variety of roles in management, marketing, personnel administration, plant supervision, and in other industries. Opportunities include management, personnel management, labor relations, personnel administration, grievance handling, dispute resolution, and labor legal issues among others. Opportunities include domestic, international and global equality, pay-age discrimination, and labor laws.

Undergraduate Program

Requirements for the Bachelor of Business Administration degree with a major in industrial relations and human resources are as follows:

RL/IL 150 Introductory Labor Legislation 3 s.h.
RL/IL 153 Collective Bargaining 3 s.h.
RL/IL 158 Personnel Management 3 s.h.
Specialized area (industrial relations or human resources management) 6 s.h.

Total 15 s.h.

Students select courses in the specialized area based on their individual interests, with the advice and consent of their advisors.
Graduate Programs

Master of Arts

A Master of Arts degree with a major in industrial relations and human resources is available as a special non-thesis program for students who seek a professional degree in the field. The degree provides comprehensive graduate study in labor relations and personnel management. Students complete courses in 41 semester hours of course work selected with consent of an advisor. The 41 semester hours include the common body of business knowledge requirements mandated by the American Assembly of Collegiate Schools of Business. For general requirement see "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Doctor of Philosophy

Students seeking a Ph.D. in industrial relations and human resources will find degree requirements specified under "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Prerequisites for Upper-Division Undergraduates

6 HRS Cooperative Education Internship 0-3 m

6-7 Introduction to Law 2-3 m

Graduate history and description of law: basic section dealing with changing economic and social patterns. Presentation of a course in law. Prerequisites: GL 212 and 213.

6-100 Nonprofit Workshop 1-2 m

6-110 Administrative Management 3-2 m

Basic principles of management / supervision / organization / distribution, decision making, leadership / motivation. Applicable to non-profit organizations. Prerequisites: GL 242 and Junior standing.

6-181 Special Topics in Industrial Relations and Human Resources Management 0-3 m

Individual projects in selected topics. Prerequisite: consent of instructor.

6-1213 Managerial Communications 3-2 m

Develops techniques and principles of communication in business and other organizational settings. Emphasis on behavior, interpersonal communication and technology. Prerequisites: satisfaction of English competency or equivalent, and junior standing.

6-120 Business Reporting 3-2 m

Expands principles of effective written communications. Emphasizes the relationship of written reports to the reporting process. Emphasis on content, design and format. Prerequisites: consent of instructor and junior standing.

6-139 Administrative Office Systems 2-3 m

Principles of office organization and management relative to the design and implementation of administrative systems; principles of personnel administration, development, and evaluation of personnel and programs in office systems. Prerequisites: Junior standing.

6-160 Law and Business 3-2 m

Selected topics, and other topics upon approval of law professor in business primarily for incoming majors. Prerequisites: GL 67 and junior standing.

6-109 Dynamics of Law 3-2 m

Nature and norms that enable law to change industrial, economic, and political society. Emphasis on the behavior of law, debate of law in American society. Prerequisite: GL 67 or senior standing.

6-110 Projected State Legislation 3-2 m

Comprehensive study of laws regulating work and health in business and industry.illuminating labor-management relations, unemployment and retirement benefits, other work-related matters. (Instructor: BL 94.)

6-111 Labor Relations Legislation 3-2 m

Impact of labor legislation on public policy. Analysis of labor-practice patterns and representation. Principles of labor law and arbitration. Prerequisites: 6-109 Dynamics of Law or consent of instructor. Prerequisite: GL 47.

6-113 Collective Bargaining 3-2 m

Integration of historical, political, social, economic, and legal factors underlying public policy governing collective bargaining. Emphasis on pre-bargaining status and interaction-negotiation techniques. Prerequisite: GL 47.

6-114 Labor-Management Policy and the Development of Human Resources 3-2 m

Study and evaluation of various manpower policies in our economy. Emphasis on manpower planning in the business and labor communities. Prerequisites: GL 62, GL 122, and GL 136.

6-115 Compensate Administration 3-2 m


6-116 Treating and Training 3-2 m

Evaluation and study of trends in the human resources field of training, education, and development activities within organizational settings. Major topics include: human resource planning, recruitment, training, and the management of organizational development. Prerequisites: consent of instructor.

6-117 Industrial Relations Systems 3-2 m

Theory and industrial experience important for understanding of components and dynamics of industrial relations. Prerequisite: consent of instructor.

6-118 Concept of Fair Employment Practices 3-2 m

The concept of fair employment practices and its role in the regulation of employment discrimination based on sex, age, color, religion, etc. Emphasis on policy development and anti-discrimination legislation and laws that currently exist. Emphasis on the requirement of a constitutional right to equal employment opportunity. Prerequisite: consent of instructor.

6-119 Collective Bargaining 3-2 m

Study of labor relations, including theories of collective bargaining and techniques utilized in negotiations and dispute resolution. Emphasis on elementary bargaining strategies. Prerequisite: consent of instructor.

6-120 Economic Systems of Industrial Relations 3-2 m

Models of labor market behavior, emphasis on contract formation, negotiation, and conflict. Emphasis on micro and macro models. Prerequisites: consent of instructor.

6-121 Social Theory and Human Resources 3-2 m

Theoretical perspectives affecting the work organization: labor relations, human resources, personnel and management. Prerequisites: consent of instructor.

6-122 Labor Markets and Human Resources 3-2 m

Occupational markets of the non-farm labor force with emphasis on the labor supply and demand for skilled labor. Prerequisites: consent of instructor.

6-123 Human Resources Management 3-2 m

The traditional perspectives of human resource management and their impacts on productivity. Prerequisites: 6-122 and 6-139.

6-126 Directed Reading in Industrial Relations and Human Resources Management 0-3 m

For advanced students interested in preparing a thesis for the Ph.D. degree. Prerequisite: research and preparation as required. Prerequisite: consent of instructor.

6-129 Contemporary Topics in Industrial Relations and Human Resources Management 3-2 m

Survey of current topics facing professionals in the field of industrial relations and human resources. Prerequisite: consent of instructor.

6-130 International Business Law 3-2 m

Legal problems arising from international business activities. Emphasis on international law, potential for increased international negotiations, and the management of organizational development. Prerequisites: consent of instruction.
Management Sciences

Chairs: Gay C. Fellaw  Professor: Celia T. Bell, William L. Berry (Stanley Professor), Andrew F. Naugle, Gary C. Ervin, and Charles C. Neller

Management Sciences is a broad field that includes traditional business disciplines such as accounting, finance, and marketing, as well as more specialized areas such as operations research, data analytics, and information systems. The program is designed to provide students with a comprehensive understanding of the principles and practices of managing organizational resources efficiently and effectively.

Required Courses:

- Management Information Systems
- Operations Management
- Marketing Management
- Financial Management
- Strategic Management

Elective Courses:

- Advanced Topics in Business Analytics
- Supply Chain Management
- Entrepreneurship

Graduate Programs

Master of Arts in Business Management

The Master of Arts in Business Management is a research-oriented program designed for students who wish to pursue advanced study in business management. Students in the program will conduct original research and develop a dissertation under the supervision of a faculty advisor.

Required Courses:

- Research Methods
- Advanced Topics in Business Management
- Strategic Management
- Entrepreneurship

Elective Courses:

- Advanced Topics in Business Analytics
- Supply Chain Management
- International Business

Graduate Certificate in Business Management

This certificate program is designed for professionals who wish to enhance their business management skills. The program consists of four courses that cover key areas of business management, including strategic planning, operations management, and human resources management.

Courses

For Undergraduates

S247 International Business

This course introduces students to the global business environment, focusing on international business practices, cultural differences, and market dynamics.

S248 Financial Management

This course covers the principles of financial management, including investment decisions, capital budgeting, and financial planning.

S249 Managerial Economics

This course provides an introduction to the principles of microeconomics and macroeconomics, with an emphasis on their application to business decision-making.

S250 Principles of Management

This course covers the principles of managerial theory and practice, including planning, organizing, leading, and controlling.

S251 Operations Management

This course covers the principles of operations management, including production planning, inventory control, and quality management.

For Graduates

S252 Advanced Financial Management

This course builds on the principles of financial management, focusing on advanced topics such as corporate finance, capital markets, and risk management.

S253 International Business

This course expands on the concepts introduced in S247, with a focus on international business strategies and cross-cultural management.

S254 Managerial Economics

This course expands on the principles of microeconomics and macroeconomics, with a focus on their application to business decision-making in a global context.

S255 Operations Management

This course expands on the principles of operations management, focusing on advanced topics such as supply chain management, Lean systems, and sustainable operations.

S256 International Business

This course expands on the concepts introduced in S252, with a focus on international business strategies and cross-cultural management in a global context.
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Graduate Program

See "Interdepartmental Graduate Programs" in the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

5M:401 Cooperative Education Internship 4.0h
Prereq: 5M:100 and 5M:124 with a grade of B.

5M:100 Introduction to Marketing
General introduction to structure of marketing environment as an organization and its strategies, with regard to marketing decisions buyers' behavior and management of marketing decisions. Prerequisites: 5M:101, 5M:102 (may be a composite), and junior standing.

For Undergraduates and Graduates

5M:101 Official Readings in Marketing
Introductory guided readings in selected topics in marketing. Prerequisite: consent of instructor.

5M:124 Marketing Research
Marketing and decision-making methods and tools of marketing information in a management role to data collection. Must be taken to test for upper-division upper-division credit. Prerequisites: 5M:100 and 5M:101.

5M:135 Consumer Behavior
Emphasis on behavioral aspects of marketing, decision-making, influence on buyer behavior, including consumer perceptions, decision-making, loyalty, loyalty, satisfaction, and household buying patterns. Prerequisites: 5M:100 and 5M:101.

5M:157 Advertising Theory and Planning
Advertising as a promotional tool, emphasis on theory, planning, and measuring strategies and tactical elements that a advertising activity. Data set on planning, advertising strategy, and advertising budget. Prerequisites: 5M:100 and 5M:101.

5M:160 Marketing Communications
Intrapersonal and interpersonal communications processes and strategies. Topics include: consumer psychology strategies for more effective persuasive strategy and tactics that coordinate advertising, personal selling, sales promotion, packaging, public relations, and publicity; media planning, execution, and analysis. Prerequisites: 5M:100 and 5M:101.

5M:170 Sales Management
The nature of personal selling and managing of the sales force, includes selling techniques, selling situations, and selling performance. Emphasis on sales force management, recruitment, selection, training, evaluation, motivation, supervision, compensation, and control. Prerequisites: 5M:100.

5M:171 Seminar in Marketing
Recent topics not covered in other courses. Enrollment limited to 5M:100 and 5M:135 students. Prerequisites: consent of instructor.

5M:184 Marketing Management
Marketing management decision emphasis on role of marketing in corporate strategy. Emphasis on the tools and techniques used to formulate strategic plans. Prerequisites: 5M:100 and 5M:101.

5M:192 Business Marketing
Marketing for business organizations emphasis on role of marketing in corporate strategy. Emphasis on the tools and techniques used to formulate strategic plans. Prerequisites: 5M:100 and 5M:101.

5M:201 Marketing Communications
Organizational and interpersonal communications processes and strategies. Topics include: consumer psychology strategies for more effective persuasive strategy and tactics that coordinate advertising, personal selling, sales promotion, packaging, public relations, and publicity; media planning, execution, and analysis. Prerequisites: 5M:100 and 5M:101.

5M:204 Sales Management
The nature of personal selling and managing of the sales force, includes selling techniques, selling situations, and selling performance. Emphasis on sales force management, recruitment, selection, training, evaluation, motivation, supervision, compensation, and control. Prerequisites: 5M:100.

5M:205 Seminar in Marketing
Recent topics not covered in other courses. Enrollment limited to 5M:100 and 5M:135 students. Prerequisites: consent of instructor.

5M:206 Marketing Management
Marketing management decision emphasis on role of marketing in corporate strategy. Emphasis on the tools and techniques used to formulate strategic plans. Prerequisites: 5M:100 and 5M:101.

5M:210 Marketing Communications
Organizational and interpersonal communications processes and strategies. Topics include: consumer psychology strategies for more effective persuasive strategy and tactics that coordinate advertising, personal selling, sales promotion, packaging, public relations, and publicity; media planning, execution, and analysis. Prerequisites: 5M:100 and 5M:101.

5M:211 Sales Management
The nature of personal selling and managing of the sales force, includes selling techniques, selling situations, and selling performance. Emphasis on sales force management, recruitment, selection, training, evaluation, motivation, supervision, compensation, and control. Prerequisites: 5M:100.

5M:212 Seminar in Marketing
Recent topics not covered in other courses. Enrollment limited to 5M:100 and 5M:135 students. Prerequisites: consent of instructor.

5M:213 Marketing Management
Marketing management decision emphasis on role of marketing in corporate strategy. Emphasis on the tools and techniques used to formulate strategic plans. Prerequisites: 5M:100 and 5M:101.

5M:220 Marketing Communications
Organizational and interpersonal communications processes and strategies. Topics include: consumer psychology strategies for more effective persuasive strategy and tactics that coordinate advertising, personal selling, sales promotion, packaging, public relations, and publicity; media planning, execution, and analysis. Prerequisites: 5M:100 and 5M:101.
Marketing/BUSINESS ADMINISTRATION

**500-600 Psychological Testing for Marketing**
- Applications: 3 cr.
- Examines a number of psychological scaling techniques that have applications in consumer research and marketing.

**56242 Seminar in Marketing**
- Examination of current marketing literature and current problems and issues in marketing. Prerequisite: consent of instructor.

**56270 Research in Marketing**
- Individually guided research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

**56280 Thesis in Marketing**
- Prerequisite: consent of instructor.

**56390 Final Studies in Marketing**
- 1 cr.
- Students work individually on various aspects of marketing in a seminar format in ongoing business firms. Prerequisite: written request from student and approval of faculty supervisor. Prerequisite: completion of research.
College of Dentistry

Dental Science Building

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Dean: James H. McLennan
Executive associate dean: John C. Montgomery
Assistant dean for research and director of Dow Institute: Christopher Eddy
Associate dean for academic affairs: Nelson S. Logan
Assistant dean for clinical activities: Thomas V. Gardner
Assistant dean for extramural affairs: C. Fredric Eisele
Assistant dean for business and financial administration: M. J. Brennon
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, where 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 dentistry; operative dentistry; partial fixed prosthesis; removable prosthesis.

- Oral Medicine
  - Preventive dentistry, oral diagnosis, dental radiology, oral pathology, orthodontics, and pain control.

- Community Dentistry
  - Ethics, epidemiology, nutrition, preventive dentistry, community health, principles of human behavior; dental economics; dental jurisprudence; geriatrics.

- Pediatric Dentistry
  - Facial growth and development, pediatric dentistry, and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year.

The second-year program includes senior-level courses in restorative dentistry and orthodontics.

Third-year dental students rotate through a series of clinics, which expose them to each of these clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment that simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural hospital programs that include hospitals, mental health institutions, the Genesee Mobile Unit, and the Special Patient Care Clinics. Fourth-year dental students also participate in preceptorships, in which they assist in-activated Iowa dental offices, gaining exposure to facets of dentistry usually not observable in an academic setting, such as practical business management procedures and the relationship of the dentist to the community.

Promotions and Graduation

Student promotions and graduation are determined by the collegiate academic and professional performance committee, which is made up of individuals appointed by the dean from the basic preclinical and clinical sciences and from other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college or has decided to withdraw from the college or has been asked to withdraw from the college by the student, the dean may appeal to the dean. All appeals are heard by an ad hoc committee composed of 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 saw it. The committee determines whether it has new information or important new insights that may have been gained, could have influenced the collegiate academic and professional performance committee's decision. The recomputation of the appeals committee is submitted to the dean for final action.

State Board of Dentistry Licensure Examination

The states of Kansas, Colorado, Missouri, Iowa, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota belong to the Central Regional Dental Testing Service, which serves as the testing agency for clinical examinations for licensure in these states. Examinations are administered at selected 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, numerous 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 in 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 180,750 volumes, including the College of Dentistry's collection of more than 10,000 volumes on dentistry and allied scientific subjects, and the more than 280 dental journals the college regularly receives. This library receives more than 2,000 journals from the related 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 consists of research laboratories, administration area, audiovisual production center, and programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local organization, the Iowa Student Dental Association, which has 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 percent of the senior class are eligible for election to Omicron Kappa, an international adathetic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses in Iowa, and both have spouses organizations.

Expenses

The College of Dentistry maintains a Supply Instrument Management System (S.I.M.S.) that provides the student with a system of purchase requisition forms necessary throughout dental training.

The instrument usage fee for the program leading to the D.D.S. degree is payable in
Financial Aid

Financial assistance for dental students is based on need. Eligibility is determined by completion of the Free Application for Federal Student Aid (FAFSA) or the Illinois Application for State Student Aid (IASSA). Need-based awards are available from the University of Illinois at Chicago. Aid is awarded based on financial need and is subject to availability.

The financial aid coordinator at the College of Dentistry is available to assist students with information about available aid sources.

Admission

Each applicant must submit a completed application form to the American Association of Dental Schools (AADSAS). The applications are available from the University of Illinois at Chicago. Applications are accepted beginning June 1 of the year prior to the year for which application is made. Complete applications must be on file at AADSAS by November 30. Applicants should apply as early as possible and should not delay until after the deadline for completion of the applications is taken.

The prospective dental student should complete an application 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).

Predental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of at least 94 semester hours of study at an accredited college or university. In exceptional circumstances, candidates with fewer than 94 semester hours of college work will be considered for admission if the applicant's performance and potential for the dental profession are considered outstanding.

The predental program of study should include:

- English
- Satisfactory accomplishment in English composition, rhetoric, and speech commensurate with the academic requirements for a bachelor's degree at the college attended.
- Mathematics: One year (equivalent to 16 semester hours), of which one-fourth must be laboratory work.
- Science: Two years (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) must be in organic chemistry, and of which one-fourth must be laboratory work.
- Biology: One year (equivalent to 8 semester hours), which must include appropriate laboratory work; requirement may be satisfied by a year's course in either general biology or anatomy and pathology (not laboratory course).

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 Illinois may be allowed to include the first year of dentistry to complete their elective hours to fulfill the bachelor’s degree requirements toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit exchanged in any other college of the University allows students who enter the College of Dentistry to obtain a bachelor’s degree from the College of Liberal Arts after successfully completing the 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 requirements of the College of Liberal Arts residence requirement by successfully completing the last 30 semester hours in the College of Liberal Arts on campus at The University of Illinois before enrolling in the College of Dentistry.

Grade-Point Requirement

The student should have a cumulative grade-point average of at least 2.5. The admissions committee gives special consideration to the quality of the student’s course work in the predental sciences in addition to his or her cumulative grade-point average.

Interviews

Personal interviews are required for applicants for admission to the College of Dentistry. Applicants will be notified when to appear for interviews, usually after the AADSAS application is received by the Admissions Office. If the applicant is unavailable during the fall term (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 Illinois 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 of Illinois Office of Admissions or the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 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 $250 deposit within 30 days after notification of admission. Applicants admitted after April 15 must submit the deposit within two weeks after notification of admission. The deposit is not refundable, but is credited toward the first term of enrollment. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Finalists for admission are selected based on academic factors, including: academic record in college, letters of recommendation, and personal interview.
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 s.h.
60:112 General Histology for Dental Students 4 s.h.
60:114 Oral Histology and Embryology 1 s.h.
61:192 Health Sciences Microbiology 4 s.h.
69:203 Introduction to Human Pathology 4 s.h.
71:111 Pharmacology for Health Sciences: Dental 5 s.h.
72:152 Mammalian Physiology 4 s.h.
99:181 Biochemistry for Dental Students 4 s.h.

Courses
Nondepartmental

110:102 Transfer Credits Accepted

110:129 First-Year Controversy Session 3 s.h.

112:145 Introduction to Genetics Dental 2 s.h.

113:104/114 Introduction to Exercise Physiology 3 s.h.

115:114 Oral Histology and Embryology 1 s.h.

117:150 Second-Year Controversy Session 3 s.h.

118:160 Bioethics Options Select one of two lecture-based mini-courses to emphasize the ethical bases of dental practice.

119:150 Dental Therapeutics Review of treatments taken by patients that may have implications for dental treatment, overview of treatments that cannot may prescribe.

119:170/178 Third-Year Controversy Sessions 3 s.h.

119:212 Program Ahead UAB Division of Dental Education's graduate programs with the locations of dental colleges abroad.

119:240 Fourth-Year Clinic 2 s.h.

119:280/285 Advanced Clinical Competencies Dental 9 s.h.

122:150 Comprehensive clinical department of dental emergency and adverse condition operative procedures

122:200 Introduction to Electrode Probe Microsurgical 3 s.h.

Lectures and laboratory work dealing with fundamentals of electrode option, electrodes and equipment, instrumentation, intraoperative coagulation, and sample preparation techniques.

123:250 Advanced Dental Restorative 3 s.h.

To provide graduate students with an overview of advances in clinical dentistry within the dental college. Offered to advanced students in oral sciences.

Clinical Management Concepts

Professor: Thomas V. Gardner

Assistant professor: Mark B. Sagan

Assistant professor: Gerald Scott

Dental Hygiene

Chair: Patricia Brown

Professor: James Elmore

Associate professors: Pauline Brown, Nancy Szy, Leflow, Elizabeth Puten, Kay Musser, Nancy Thompson

Administrative assistant: James Elmore

Dental Hygiene Program

Qualified by education and licensure, the dental hygienist applies knowledge of the basic, social, professional, and clinical concepts 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, 82:61 Introduction to Periodontology, 82:61 Operative Dentistry Laboratory for Hygienists, 86:40 Introduction to Oral Pathology, 86:61 Oral Dental Hygiene for Hygienists, 86:62

Undergraduate Program

Qualification by education and licensure, the dental hygienist applies knowledge of the basic, social, professional, and clinical concepts 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, 82:61 Introduction to Periodontology, 82:61 Operative Dentistry Laboratory for Hygienists, 86:40 Introduction to Oral Pathology, 86:61 Oral Dental Hygiene for Hygienists, 86:62

Special Programs

Early Admissions

The College of Dentistry has an early admission program set up with the University of Iowa, Augustana College in Rock Island, Illinois, and Purdue V8 & M University in Prairie View, Texas. The Dental Early Admissions Program (DEAP) allows academically-qualified students interested in a dental career to be admitted as early as the first year of their undergraduate college education while passing matriculation to the College of Dentistry until they have completed three years of liberal arts education. During their three years, the students are engaged in a liberal arts curriculum that incorporates the dental prerequisite courses. Once selected for the program, the student must maintain a 3.60 grade-point average to assure matriculation to The University of Iowa College of Dentistry.

Scholarship

The College of Dentistry has a limited number of Merit Scholarships available to first-year dental students. Selection is based on undergraduate grade-point average, DAT scores, and the interview. This scholarship is renewable for two additional years if a 3.25 cumulative grade-point average is maintained.

Contract

Under an agreement with The University of Iowa College of Dentistry, the State of Arkansas makes supplemental tuition payments to students who are dentistry students at Iowa. These payments enable the Arkansas students to pay the equivalent of Iowa resident tuition for their study here.

Graduate and Postgraduate Study

Programs of study leading to the Master of Science degree are offered by the College of Dentistry in the following specialties: Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Pediatric Dentistry, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics. Admission to any of the graduate programs requires satisfactory completion of all requirements as outlined in the Graduate Catalog. Possession of the Doctor of Dental Surgery degree or its equivalent (except for Dental Hygiene, and Departmental approval).

Departments also offer postgraduate courses of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as for graduate programs. A certificate is awarded upon satisfactory completion of the postgraduate program.

112:107 Group Advocacy Seminar 2 s.h.

Weekly series of meetings and student activities providing educational experience in patient rights and treatment consultation, utilizing computerized patient record systems.

113:105 Clinical Admission Seminar 1 s.h.

Clinical evaluation, diagnosis, and treatment of patients with diverse emergencies; determination of patient dental needs; consideration of appropriate department for definitive treatment.

114:105 Advanced Topics in Quality Assurance 1 s.h.

Discussion of quality assurance issues from the viewpoint of a practicing dental hygiene student and an instructor. Focus is placed on their ability to practice in relation to quality assurance. Focus is placed on their ability to practice in relation to quality assurance.
DENTISTRY/Dental Hygiene

Dental Radiology for Dental Hygienists; 87-63 Anesthesia: Anatomy; 86-51 Dental Anatomy; and 88-52 Head and Neck Anatomy.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice. Dental Hygiene Core I and Dental Hygiene Core II, which integrate between the baccalaureate and post-baccalaureate dental sciences with the theory and practice of clinical dental hygiene. During the senior year, students advance their clinical skills in 8685 Clinical Dental Hygiene I; 8528 Advanced Periodontics for Dental Hygiene. Students each student is assigned to work with a graduate student in periodontology, performing clinical procedures on adults who have active periodontal disease. This experience not only advances clinical hygiene skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.

Seniors receive additional clinical experience in 8686 Clinical Dental Radiology for Dental Hygienists. Weekly lectures and seminars reinforce clinical learning. 88-36 Seminar: Dental Hygiene Concepts and Practice.

Senior students also are enrolled in 88-87 Practicum: Community Dental Hygiene; 88-88 Seminar: Community Dental Health; 79-722 Designing and Developing Instructional Materials; 725-101 Restorative Science: 112-145 Introduction to Geriatric Dentistry.

Courses traditionally taught as isolated subject-oriented units, such as dentists' health education, public health, and epidemiology, are incorporated into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical applications of community dental health. Students discuss broad community health issues related to the provision of dental health care. Field experiences enable students to apply knowledge of human behavior, basic principles of health education and teaching, and healthcare process improvement disciplines 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 the same 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 (8 transfer students) of sophomore-level biology—371-1-Introductory Animal Biology;
Three semester hours of inorganic chemistry—4-6-General Chemistry I;
Three semester hours of organic chemistry, including biochemistry—4-6-1-General Chemistry II;
Four semester hours of microbiology—60-164 Microbiology;
Three semester hours of nutrition—17-4-Food, Nutrition, and You;
Three semester hours of psychology—3-1-Elementary Psychology;
Three semester hours of sociology—3-1-Sociology I;
60-1 Elementary Human Anatomy;
Four semester hours of physiology—72-236 or 72-148 Human Physiology.

These prerequisites provide the educational basis for the dental hygiene course of study. In addition, students admitted to the professional program of study must complete basic certification in cardiopulmonary resuscitation (CPR) prior to entrance. Completion of a two-year associate degree program in dental hygiene does not provide an appropriate background for transfer into the baccalaureate program at Iowa State University. Students begin the professional program in dental hygiene in the fall only. Students enrolled 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 for qualified educators in dental hygiene as well as the need for preparing graduates to contribute to the advancement of new knowledge in dental hygiene. Program graduates are prepared for positions as dental hygiene educators and administrators, research assistants, 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 professional skills and experience in conducting research. The curriculum design provides the student with major course content in anatomy and dental hygiene theory. In the biological field, this consists of the pathology and microbiology of dental plaque, including plaque microbiology and 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 training, 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 session, the usual time to complete the program is largely determined by the beginning of the fall semester is preferred. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores must be received by the University as quickly as possible prior to the semester for which admission is desired. Most students should expect to complete the program within two 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 microanatomy, histology, biochemistry, oral pathology, and periodontology.

Electives emphasizing the social, economic, and political aspects of health include epidemiology, medical sociology, and health administration.

Students also are encouraged to consider taking electives in education, such as educational measurements, theory of learning, and administration.

Courses required in dental hygiene are 88-201 Seminar: Dental Hygiene Literature Review; 88-203 Research: Dental Hygiene; 88-204 Selected Topics in Dental Hygiene Education; 88-325 Social Factors and Oral Health, and 88-326 Thesis: Dental Hygiene.
Other required courses are 111.212 Statistical Methods in the Biomedical Sciences, or 71-143 Introduction to Statistical Methods. 111.224 Design and Evaluation of Research Doseage.

Admission
Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination (GRE) Aptitude Test and a 2.5 minimum undergraduate cumulative grade-point average. The undergraduate education of the applicant should include courses equivalent to those in the graduate dental hygiene major at The University of Iowa.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Cabrillo Hall. These materials must be received before the candidate's application can be processed. Application for admission and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Special Programs
Through an independent study program, students can explore additional career options in dentistry or expand their educational background in a dentistry hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty directed research project. Others considering graduate programs in public health or dental hygiene education under the direction of faculty, conduct projects related to these interest areas.

Facilities
University of Iowa dental hygiene majors receive their professional preparation in the University's modern Dental Science Building. This building is part of The University of Iowa Health Center complex, one of the nation's outstanding health sciences teaching, research, and patient care facilities.

Financial Aid
In addition to financial assistance available to University students in general, there is a limited number of basic specifically for dental hygiene students. These loans are based on assessment of the student's academic record as well as financial need.

Courses
For Undergraduates

B.I. Dental Anatomy
  1.5 h.
  Include dental terminology, the morphologic characteristics of teeth, their position relationships and inherent functional considerations. Emphasis on the relationship of these morphologic factors to clinical design of prosthodontic appliances.

B.2. Dental and General Anatomy
  1.5 h.
  Introductions to cellular biology, tissue morphology, and physiological processes related to maintenance and repair of oral structures.

B.2. Dental Hygiene Care I
  2.5 h.
  Emphasis on oral health hygiene for the community. Emphasis on preventive procedures and clinical services.

B.2. Dental Hygiene Care II
  2.5 h.
  Emphasis on oral health hygiene for the community. Emphasis on preventive procedures and clinical services.

B.3. Dental Hygiene Concepts and Procedures
  4 h.
  Review of current research and advances in preventive procedures; ethical, legal, and social responsibilities of dental hygienists; and education of patients and drugs.

B.3. Community Dental Health
  4 h.
  Emphasis on oral health hygiene for the community. Emphasis on preventive procedures and clinical services.

For Graduates

B.20. Seminar: Dental Hygiene Literature Review
  1 h.
  Analysis of dental hygiene literature focusing on professional, sociological, and ethical factors influencing trends and current status of knowledge in field of dental hygiene.

B.22. Research Methods
  2 h.
  Emphasis on the planning of research projects related to clinical and health care.

B.24. Selected Topics in Dental Hygiene
  2.5 h.
  Theory and research applied to specific areas of dental hygiene education in clinics, schools, or related settings. Emphasis on biostatistical and methodological issues.

B.30. Dental Rotation and Oral Health
  6 h.
  Education of current research conducted on cultural, socio-economic, and informational factors influencing oral hygiene and oral health care.

B.32. Thesis/Dental Research
  3 h.
  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 pathologic conditions of the dental pulp and periapical tissues, emphasizing the areas of prevention and diagnosis of dental infection and periapical disease. Students treat endodontic patients under direct supervision of faculty and staff.

Graduate Program

The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and/or a career in dental education and research.

The department offers two types of graduate (post-D.D.S.) programs.

The Master of Science degree program requires a minimum of 40 graduate semester hours, including an original research project and thesis. The student follows a plan of study that may involve a total of 60 semester hours.

The certificate program requires no formal thesis. The candidate is expected to write a scientific paper of publishable quality, based on original research.

The certificate programs 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 considered for admission. The program requires satisfactory performance in a comprehensive written and/or oral examination. The student will not be considered for graduation unless it 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 broad knowledge of 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; and to recognize the value of the pursuit of academic recognition, and to develop the student's ability to think, identify, and report the results of research investigations.

An applicant for the graduate program in endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for admission to the Graduate College of The University of Iowa. The graduate programs in endodontics normally begin July 1.
However, it is also possible to start a program at the beginning of either the spring semester or summer session. Applications should be made no later than two semesters prior to in advance of anticipated starting date. Students who have not met the requirements for admission to the Graduate College also must be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may also be requested.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate or degree. A student who fails below this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not receive themselves in private practice enterprises outside the college. A student who does so will be asked to withdraw him or herself exclusively either to the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

Courses

Predoctoral

00.010 Endodontic Case Studies 2.0 h.
Lectures, seminars, and laboratory projects designed to help students understand endodontic concepts, problems, and techniques necessary for treatment of pulpal problems in human teeth.

00.100 Clinical Endodontic Practice 3.0 h.
Clinical experience with instrument and treatment of root canal and preoperative endodontic emergencies and diagnosis and treatment are also provided to patients by students under faculty supervision.

00.185 Clinical Endodontic Seminar 2.0 h.
Lectures and seminar courses expanding basic concepts of root canal, normal and normal variations, endodontic radiographic interpretation, and diagnostic and treatment considerations, surgical endodontics, and endodontic memoranda.

00.170 Endodontic Topics in Endodontology 1.0 h.
A discussion of current topics and recent research in endodontics.

Graduate

00.215 Endodontic Literature Review I 2.0 h.
00.216, 00.216A, 00.217 and 00.218 review pertinent and recent publications and research that are related to endodontics. The topics are topical and are verifiable, covering the last two years. The objective is to acquaint the graduate student with current research literature.

00.228 Endodontic Literature Review II 3.0 h.
00.227 Endodontic Literature Review III 3.0 h.
00.228 Endodontic Literature Review IV 3.0 h.

00.300 Research in Endodontics 3.0 h.
Topic selection, personal preparation and starting research, comparative laboratory investigation and gathering of data, and writing of thesis or dissertation.

00.321 Thesis Preparation in Endodontics 3.0 h.
Preparation of thesis. A project of student interest is selected to study an area of particular interest under the guidance of an endodontic faculty member.

00.350 Endodontic Surgery I 1.0 h.
Evaluation of endodontic cases that require surgical treatment, discussion of clinical management methods and philosophies; graduate student/therapist/surgical collaboration in the surgery cases before and after treatment to the faculty discussion in surgical approach to endodontic treatment.

00.361 Advanced Clinical Endodontics I 3.0 h.
Clinical treatment of patients, progressing from simple to more advanced, failure to repair and extraction. Must be taken every semester.

00.363 Seminar in Endodontics I 1.0 h.
Historical background of pulp and clinical pathology, with emphasis on clinical and histopathologic diagnosis, response of root and pulp pathologic healing bone.

00.365 Seminar in Endodontics III 1.0 h.
Clinical evaluative case presentations and discussion of endodontic cases of interest, evaluation of success and failure of endodontic cases in relation to treatment procedures.

00.366 Seminar in Endodontics IV 1.0 h.
All areas of treatment related to endodontics except endodontic cases and difficult areas, especially pediatrics, critical care, endodontics and advanced endodontic cases.

00.371 Preclinical Teaching in Endodontics 1.0 h.
For students interested in teaching dentistry, especially to undergraduate students.

00.370 Preclinical Teaching in Endodontics 1.0 h.
Preclinical teaching for undergraduate students.

Family Dentistry

Head: Daniel L. Hall
Professor: Daniel L. Hall
Associate professors: Larry J. Drabik, Howard W. Derkosh, John T. Darting, Warren D. Williams
Assistant professors: Ilona V. Harvey, Ann L. Durante, Nan M. Allen

The Department of Family Dentistry is responsible for the senior dental student's final synthesis of academic experiences. The major goal of the program is to prepare students for comprehensive dental practice.

Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on the previous year's education. All areas of clinical and didactic instruction, patient management, education, and awareness of patient care needs are stressed.

The department's two practice management courses—case lecture, the other clinical courses—are designed to prepare the student to manage practice location, treatment, and safety. The business aspects of a dental office.

Courses

Fixed Prosthodontics

Head: Kenneth A. Turner
Professor: Keith E. Thayer, Kenneth A. Turner
Associate professors: Lawrence Huber, Steven A. Prozell
Assistant professors: Frederick R. B. Drescher, Robert Martin
Degree offered: M.S. or Certificate

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 prosthodontic treatment. Third-year students attend a part-time or full-time program in fixed prosthodontics in a concentrated clinical program of patient treatment 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 predoctoral 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 laboratory courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biostatistics and epidemiological statistical inferences in medicine, and course work in the general area of basic science. A research project and thesis are also 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 program are the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its equivalent.

Courses

Predoctoral

11125 Prosthodontic Materials Laboratory 2.0 h:
The student learns to handle and manipulate dental materials for fabrication of indirect restoration or laboratory procedures. Same as 11130.
11131 Dental Materials

11132 Orthesis I

11140 Fixed Prosthodontic Technique

Graduate

11129 Fixed Prosthodontic Technique Laboratory 3.0 h:
Technique procedures required following initial prostheses.
11140 Prosthodontic Exercise Laboratory 1.0 h:
Practical applications of the concepts of orthodontics and prosthetics in the maxillary arch.
11150 Fixed Prosthodontic Clinical Practice

11150 Fixed Prosthodontic Clinical Practice Seminar: seminars containing previously acquired knowledge in orthodontics and prosthetic courses with clinical fixed prosthetic procedures.

Graduate

11129 Seminar: Fixed Prosthodontics 3.0 h:
Conferences and discussions on assigned research topics.
11131 Seminar: Oral Disease 1.0 h:
Conferences and discussions on assigned research topics.
11132 Seminar: Oral Disease 1.0 h:
Assessment of research topic in student seminar presentation.
11140 Research: Fixed Prosthodontics 3.0 h:
Research design and collection of data on selected research project.
11150 Thesis Preparation: Fixed Prosthodontics 3.0 h:
Preparation in accordance with regulations of the Graduate College.
11150 Advanced Clinical Fixed Prosthodontics 3.0 h:
Clinical prosthodontic cases under the guidance of a fixed prosthodontic specialist.
11160 Tissue Methods: Fixed Prosthodontics 1.0 h:
Advanced clinical procedures.
11160 Library Assignment: Fixed Prosthodontics 1.0 h:
Utilization of research and professional literature for abstracts and papers.

Operative Dentistry

Head: Walter W. Johnson

11150 Operative Dentistry Laboratory for Undergraduates 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.

Predoctoral

11150 Operative Dentistry Laboratory for Undergraduates 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.

Preclinical

11150 Operative Dentistry Laboratory for Undergraduates 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.

11150 Operative Dentistry II 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.

11150 Operative Dentistry III 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.

11150 Operative Dentistry IV 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.

Graduate Program

The Department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate 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 of advanced operative dentistry.

Requirements for the M.S. degree include satisfactory completion of 48 semester hours of specified graduate-level courses: preclinical, preclinical, and oral disease of the tooth and the examination of the candidate by an examining committee.

Students should plan to turn in their own financial support for the research and thesis.

Applicants for this program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. An interview with the applicant may be requested.

Courses

11150 Operative Dentistry Laboratory for Undergraduates 1.0 h:
Basic course in application of organic materials and metals to the restorative processes of operative dentistry.
Oral Pathology and Diagnosis

Head: Gilbert C. Libby
Associate professors: John D. Baumgartner, Arthur C. Bauman, William J. Hohman, Philip S. Naprstek
Assistant professor: Michael W. Haeberlein, Frank R. Sapp, Steven D. Zemann
Adjunct associate professors: George C. Koscielny, Thomas F. Williams
Assistant professor emeritus: Victor A. Dami
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, radiographic, and microscopic features of these diseases and their management. Special emphasis is placed on the influence of oral health and disease on the general health of the patient and on their influence on dental therapy and the influence of dental therapy on systemic diseases.

Graduate Programs

Master of Science
Advanced instruction is available for graduate-level student in health sciences and related fields who are preparing for specialty practices or careers in teaching and research in the areas of oral pathology, oral diagnosis, oral medicine, and dental radiology.
Examinations for the Master of Science degree are expected to develop substantial ability for research and professional work in oral medicine; and should anticipate the considerable effort devoted to completing an assigned research problem and the thesis based on it.

Minimum requirements for completion of this program are 45 semester hours of graduate credit and a thesis. The required courses are:

1112 Statistical Methods in the Biomedical Sciences
6010 General Pathology for Medical Students
6012 Systemic Pathology for Medical Students
6128 Research in Oral Pathology and Diagnosis
80240 Histopathology
80260 Advanced Oral Pathology
92265 Dental Science Research Methodology
96180 Topics in Oral Pathology

DENTISTRY:Operative Dentistry

Discipline Studies
42106 Operative Dentistry I Seminar 1 s.h.
Examination and discussion of clinical cases, clinical procedures, and treatment methods. Evaluation topics relate to student clinical treatment experience, for third year students.

Graduate

Research Program
81106 Operative Dentistry I Seminar 1 s.h.
Projects, graded, and discussion of oral and general health. Emphasis on concepts of operative dentistry.
82106 Operative Dentistry II Seminar 1 s.h.
Projects, graded, and discussion of research on biomechanical aspects of cavity preparation and core construction.
83106 Operative Dentistry III Seminar 1 s.h.
Projects, graded, and discussion of research on problems associated with dental prosthesis.
84106 Operative Dentistry IV Seminar 1 s.h.
Projects, graded, and discussion of research on operant methods and their role in operative dentistry.

Clinical Studies
82106 Operative Dentistry: Advanced Clinical I 1 s.h.
In-depth study of restorative restoration procedures, bonding cements, and microreinforced composites.
83106 Operative Dentistry: Advanced Clinical II 1 s.h.
Teaching of clinical care to the special clinical situations and care of cavity preparations during the course of operative procedure.
84106 Operative Dentistry: Advanced Clinical III 1 s.h.
Teaching of clinical care to the special clinical situations and care of cavity preparations during the course of operative procedure.
85106 Operative Dentistry: Advanced Clinical IV 1 s.h.
Teaching of clinical care to the special clinical situations and care of cavity preparations during the course of operative procedure.
86106 Operative Dentistry: Advanced Clinical V 1 s.h.
Teaching of clinical care to the special clinical situations and care of cavity preparations during the course of operative procedure.
87106 Operative Dentistry: Advanced Clinical VI 1 s.h.
Teaching of clinical care to the special clinical situations and care of cavity preparations during the course of operative procedure.

Additional Coursework
61221: Statistical Methods in the Biomedical Sciences 3 s.h.
6010 General Pathology for Medical Students 3 s.h.
6012 Systemic Pathology for Medical Students 9 s.h.
6128 Research in Oral Pathology and Diagnosis 2 s.h.
80240 Histopathology 3 s.h.
80260 Advanced Oral Pathology 3 s.h.
92265 Dental Science Research Methodology 1 s.h.

Dental Science Research Methodology 1 s.h.

Dental Science Research Methodology 1 s.h.

Admission
Applicants must have completed an accredited program leading to the D.D.S. or D.M.D. degree, with clinical experience, 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

0460 Introduction to Oral Pathology 1 s.h.

0461 Oral Pathology for Dental Hygienists 1 s.h.

0462 Oral Pathology for Dental Hygienists 1 s.h.

0463 Dental Radiology for Dental Hygienists 1 s.h.

0464 Clinical Dental Radiology for Dental Hygienists 2 s.h.

Predoctoral

0410 Introduction to Diagnosis and Radiology 1 s.h.

0411 Oral Pathology 1 s.h.

0412 Introduction to Microbiology and Immunology 1 s.h.

0445 Prognosis Diagnosis and Radiology 1 s.h.

0465 Systemic Disease Manifestations 1 s.h.

0466 Clinical Oral Pathology and Diagnosis 1 s.h.

0467 Clinical Dental Radiology 1 s.h.

0468 Topics in Oral Pathology 1 s.h.

Graduate

0690 Oral Pathology and Diagnosis Literature Review

0825 Microanatomy of Oral and Paranasal Structures

Oral and Maxillofacial Surgery

Acting head: John C. Montgomery

0401 Medical, Laboratory, and Histological Features of Disease

0402 Surgical Oral Pathology

0403 Basic Research in Oral Pathology and Diagnosis

0404 Hospital Oral Pathology

0405 Oral Pathology Advanced Clinic

0406 Advanced Oral Pathology

0407 Oral and Maxillofacial Surgery

Predoctoral Program

The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with known surgical skills, to enable the student to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts, clearly indicating the moral responsibility assumed for the surgical problems undertaken. The clinical portion of the curriculum allows the student to develop surgical skills and apply the theoretical knowledge gained in the didactic courses. The theory and practice of anesthesia, intensive care, intravenous sedation, and nitrous oxide anesthetic 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 provide preparation for specialty practice. 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 training.

The residency period covers four years of hospital training, providing an orientation to basic knowledge acquired in both basic and clinical sciences, acquisition of the principles of anesthetic management 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. Thereafter, in addition to clinical and surgical training, the resident takes advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology, and reviews closely-related disciplines such as orthognathics, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity to participate in clinical teaching, operating room experience are important aspects of the residency program.

The resident gains clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, pathology, pharmacology, and pathology assume greater clinical significance, and increased responsibility in the operating room as first assistant and 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 a faculty advisor 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) General Test is required.

The applicant must be a graduate of an accredited college of dentistry and be registered to practice dentistry in the United States.

The applicant should be in the upper third or better of their college graduating class.

Required documents include application for graduate oral and maxillofacial surgery; applicant's official college transcripts, and letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references.

Interviews are not required but are strongly recommended.

Applicants may be appointed any time after the application has been completed and the staff elects to take official action. All appointments should be tendered on or before January 1 prior to the July 1 effective date.

The graduate admission office will send to the applicant an admission form to be completed for the Graduate College by approximately March 1.

Facilities

The University of Iowa Health Care has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The facilities of The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Center, and the colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Hospital Organizations

The organizational structure of University of Iowa Hospitals and Clinics includes a hospital dentistry clinical service with divisions of oral and maxillofacial surgery, family dentistry, pediatric dentistry, orthodontics, periodontology, crown-bridge anomalies, prosthodontics, endodontics, and diagnosis and oral pathology. The oral and maxillofacial surgery residency program and a two-year general practice residency program are conducted under the auspices of the Division of Oral and Maxillofacial Surgery and Division of Family Dentistry.

Courses

Dental Hygiene

87-41 Aesthetics and Analysis

Predoctoral

87-114 Aesthetics and Paula Code

87-115 Aesthetics and Paula Code II

87-119 Basic Oral and Maxillofacial Surgery

87-143 Aesthetics and Paula Code III

87-155 Advanced Oral and Maxillofacial Surgery

87-166 Clinical Oral and Maxillofacial Surgery

Graduate

87-201 Hospital Procedures

87-202 Basic Science Review

87-203 Surgical Anatomy

87-204 Principles of Anesthesia

87-206 Pulmonary and Acute Control

87-207 Hemodynamics

87-208 Oral and Maxillofacial Surgery

87-216 Oral Pathology Conference

87-217 Oral Pathology Conference

87-218 Oral Pathology Conference

87-219 Oral Pathology Conference
Orthodontics
Read: John S. Gage
Professor: George F. Andreassen, Sarah E. Johnson, Charles R. Kemnitz, Robert N. Stacy
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 (Diplomates of 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. 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, qualifies a student for the Certificate of Orthodontics. If a student satisfactorily completes a thesis based on an original research project, he or she will qualify for an M.S. degree in addition to the certificate.

Opportunities are available for research and independent study in the department. Special facilities for research in biomechanics and craniofacial growth are available.

Interaction with other departments provides learning and research opportunities in surgical orthodontics, clinical and laboratory research, education, 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 October 1 for the class starting July 1. Applicants are required to come to the University for interviews with department faculty.

Courses
Predoctoral
88.117 Growth and Development 1 s.h.
Provides basic and introductory information about normal growth and development with emphasis on the craniofacial region.

88.135 Orthodontic Diagnosis and Treatment 1 s.h.
Introduces the student to the complexities and principles of orthodontic diagnosis and the treatment of malocclusions, topics include differential diagnosis and treatment planning, orthodontic and periodontal treatments, treatment of growth and development of the craniofacial complex, growth of the jaws, growth of the auricles and facial skeleton.

88.145 Orthodontic Laboratory 1 s.h.
Design and construction of orthodontic appliances; study of control records.

88.190 Orthodontic Treatment 1 s.h.
Prepares the student for clinical management of the orthodontic patient, focuses on the management of the orthodontic patient with emphasis on initial consultation and diagnosis.

88.195 Orthodontic Practice 1 s.h.
Case analysis designed to help students develop ability to differentiate between simple and complex orthodontic problems. Addresses classification, diagnosis, and treatment planning, and assists the student in understanding the relationship of academic study to practice.

88.199 Orthodontic Clinic 1 s.h.
Clinical experience in orthodontics, treatment of orthodontic patients with emphasis on initial consultation and diagnosis. Corequisite: 88.190. (C) 2 s.h.

88.201 Orthodontic Program in Craniofacial Growth 2 s.h.

88.202 Diagnosis and Treatment Planning 3 s.h.
Introduces patients to diagnostic and treatment planning problems. Topics include orthodontic and surgical treatment of patients with facial asymmetry, orthodontic treatment of patients with skeletal discrepancies, and orthodontic treatment of patients with craniofacial malformations.

88.210 Advanced Orthodontic Techniques 2 s.h.
Provides theoretical and practical instruction in the use of orthodontic appliances, and the use of orthodontic appliances in the treatment of patients with craniofacial malformations. Corequisite: 88.190. (C) 3 s.h.

88.215 materials 2 s.h.
Therapeutic techniques and materials used in orthodontic treatment. Topics include materials and their clinical use, orthodontic treatment of patients with craniofacial malformations during active growth period.

88.217 Case Analysis 3 s.h.
Clinical cases in which diagnosis and treatment of craniofacial malformations have been undertaken are discussed. Emphasis is on development and application of orthodontic techniques.

88.290 Orthodontic Practice 3 s.h.
Clinical practice of orthodontics.

88.313 Orthodontic Seminar 3 s.h.
Seminar, discussion, and presentation by orthodontists and specialists in orthodontics on cases of special interest. The seminar is open to students who are interested in specialization in orthodontics, those who are completing orthodontic treatment.

89.111 Problems: Orthodontics 3 s.h.

89.255 Research Orthodontics 3 s.h.
Reading of current biological and technical publications, analysis critically of research articles and sources. Students critically evaluate articles and sources encouraged to think critically about new knowledge and to accept or reject concepts for developing their topics before the class.

89.256 Practice Management 3 s.h.
Prepares the student for practice management, focusing on business and office procedures, ranging from small practices to partnerships, and practice organization.

89.270 Pathology/Anatomy 3 s.h.
Prepares the student for practice management, focusing on anatomy and pathology of the craniofacial structures and their impact on orthodontic treatment.

89.282 Surgical Orthodontic Seminar 3 s.h.
Topics include orthodontic, dental, and surgical treatment of craniofacial malformations.

89.289 Orthodontic Assistant 3 s.h.
Preparation for practice management, focusing on practice management, focusing on administration, office management, and financial management.

89.290 Orthodontic Clinic 3 s.h.

Pediatric Dentistry
Head: Henry R. Peek
Associate Program Directors: James A. Croll, Stephen J. Goetfeld, Mark E. Jensen
Clinical Faculty: Howard R. Land, Mark E. Jensen
Clinical Assistant Faculty: Michael J. F. Kruzel, Lyanne Liptak
Examiners for Certification: Mary Beth Goodyear
Degree offered: M.S. (certificate also offered)

The Department of Pediatric Dentistry provides instruction for dental and graduate students in the prevention and treatment of oral disease in children. It is concerned with the development, diagnosis, and treatment of oral disease in children, and with the education of dental students in the prevention and treatment of oral disease in children. The department is concerned with the development, diagnosis, and treatment of oral disease in children, and with the education of dental students in the prevention and treatment of oral disease in children.

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
Dental Education of the American Dental Association.

Students are trained in all phases of pediatric dentistry, to permit them career choices in pediatric dentistry, education, or research. Approximately 5 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 Pediatrics in the College of Medicine and with the University Hospital School and the University of Iowa Hospitals and Clinics permits emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of developmentally disabled children.

Research Opportunities

Research carried out by faculty and graduate students in pediatric dentistry has been selected 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 area of caries, orthodontics, pediatric dentistry, and pediatric orthodontics.

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 faculty members are Diplomates of the American Board of Pediatric Dentistry.

Financial Aid

Significant support is available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission

Prospective students must apply to the Graduate College.

Courses

Predoctoral

- 56140 Pediatric Dentistry Diagnosis and Treatment 2.00
- 56150 Pediatric Dentistry Research 2.00
- 56160 Pediatric Dentistry Clinical Practice 2.00

Graduate

- 56170 Advanced Electro Microscopy 2.00
- 56180 Advanced Clinical Pediatric Dentistry 2.00
- 56190 Advanced Clinical Pediatric Dentistry 2.00
- 56200 Advanced Clinical Pediatric Dentistry 2.00
- 56210 Advanced Clinical Pediatric Dentistry 2.00

Graduate Program

The Master of Science program is designed primarily to prepare candidates for teaching, research, and specialization in periodontics. The program requires:

- Satisfactory completion of at least 24 semester hours of required and elective courses;
- Preparation and defense of an acceptable thesis based on original research requiring at least 11 semester hours of research and 3 semester hours of thesis preparation;
- Satisfactory completion of a comprehensive written and oral 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, programs 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, dental clinics, and research in periodontal diseases. Such programs will be interdisciplinary with students in anatomy, pathology, microbiology, pharmacology, physiology, and other areas.

Certification

Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, the certification program provides a sound foundation for the clinical practice of periodontics.

Completion of the program requires 24 calendar months of full-time study, with a minimum of 60 semester hours of required and elective courses.

Satisfactory completion of a comprehensive written and oral examination and 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 Convocation 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 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 departmental laboratories in histology and histochemistry, microbiology, and biochemistry. Electron microscopy with EM and scan capabilities, and growth and development. These facilities are in addition to those available by arrangement in The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Center, and in the basic science departments.

Financial Aid

The applicant must be financially prepared to undertake uninterrupted studies. Assistance and loans are offered, dependently upon available resources.

Courses

Dental Hygiene

31:01 Introduction to Periodontology 2 s.h.

Fundamental concepts of periodontics for dental hygienists.

31:02 Advanced Periodontology 3 s.h.

Graduate-level courses emphasizing current status of periodontal biology, incidence, prevention, and etiologic factors.

Predoctoral

32:140 Periodontic Methods I 1 s.h.

Basic periodontics, normal periodontal, gingival, periodontal, diagnosis, prognosis, and treatment planning.

32:141 Periodontic Methods II 1 s.h.

Basic periodontics, normal periodontal, gingival, periodontal, diagnosis, prognosis, and treatment planning.

32:180 Periodontology 3 s.h.

Comprehensive clinical management of the periodontal patient.

32:181 Periodontology 12 s.h.

Comprehensive concepts of periodontology and the clinical management of patients observed by theory and seminar topics.

Graduate

32:221 Advanced Periodontology 6 s.h.

Preventive teaching and graduate student with comprehensive review of periodontal therapy. Offered summer session.

32:222 Clinical Seminar in Periodontics 3 s.h.

Comprehensive management of periodontal patient, with emphasis on treatment planning and case documentation and presentation for complete dental therapy. Required for second semester during required first fall and spring semester.

32:223 Methods of Instruction in Periodontology 2 s.h.

Experiences in course design in periodontics, including laboratory techniques and methods of evaluation.

32:227 Practice Teaching in Periodontology 3 s.h.

Practical experience in various specialty areas, seminar type, and clinical teaching in periodontology.

32:228 Recent Advances in Periodontology 3 s.h.

Current and future trends in periodontology.

32:229 Periodontal Therapy Seminar 3 s.h.

Emphasizes differential diagnosis and etiology of periodontal disease as related to clinical periodontal practices. Offered spring semester.

32:231 Applied Oral Microbiology 3 s.h.

Review and extension of student knowledge of microbiology as it applies to oral health problems. Offered spring semester.

32:232 Biochemical Aspects of Periodontology 3 s.h.

Emphasis on biochemical aspects of bacterial, host responses, nutrition, etc. Related to periodontology. Offered fall semester.

32:233 Dental Science Nutrition 3 s.h.

Emphasis on nutrition and its role as it applies to periodontal health. Offered fall semester.

32:234 Dynamics of Oral Soft Tissues 3 s.h.

Review of methods and techniques associated with changes in cellularity and periodontal soft tissues.

32:235 Methods for Advanced Studies of Oral Tissues 3 s.h.

Evaluation of advanced research techniques that have led to present concept of structure of periodontal tissues and mechanics. Offered spring semester.

32:236 Periodontology Literature Review I 1 s.h.

Current dental literature of every year.

32:237 Periodontology Literature Review II 1 s.h.

Current dental literature of every year.

32:238 Periodontology Literature Review III 1 s.h.

Current dental literature of every year.

32:239 Periodontology Literature Review IV 1 s.h.

Current dental literature of every year.

32:240 Research Periodontology 3 s.h.

Preparation for original research project and completion of thesis.

32:241 Thesis Proposal in Periodontology 1 s.h.

Comprehensive review of the literature related to the periodontal patient, with emphasis on the complete case. Required each semester.

Preventive and Community Dentistry

Acting head: Nelson A. Logan.

Professors emeriti: Nahum C. Card, W. Philip Pashley.

Associate professors: Nancy C. Cascio, Howard B. Field, Frank J. Kolanus, Dorothy Root, Charles A. Summerson.

Assistant professors: Jay Hand, Steven Levy, Clinical Instructor: Howard Cowen.

Degree offered: M.S.

Predoctoral Program

Programs in preventive and community dentistry are designed to increase dental students' awareness of urgent health needs and to encourage them to develop and implement approaches to alleviate these needs. Extramural programs provide students with opportunities to interact with health care teams and members of communities in Iowa. The department conducts five full-time-to-aim extramural programs throughout the state.

Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make them aware of the societal obligations they must assume in order to practice effectively.

Included in the department's resources in a mobile dental van designed for geriatric programs. The van, operated throughout Iowa, gives general dental students a unique experience with this age group.

Graduate Program

The Master of Science degree program is designed to prepare students in community dentistry and dental public health with emphasis on research. In addition, clinical track emphasizing pediatric dental public health is concurrently available. The program also provides a high degree of professional preparation in the necessary areas 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 31 semester hours of course work that includes a thesis containing original research. Students should expect to take two to three years to complete all degree requirements.
Graduate Program

The Master of Science degree program prepares the specialist for a career in education and research. The requirements are flexible, permitting the development of a plan of study that will fill the individual needs of each student. Each student is required to prepare a thesis based on original research and pass an oral and/or written comprehensive examination. The student’s advisor serves as chair of the examining committee. The student is required to meet all the requirements for the master’s degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Minimum requirements for admission to the program correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its foreign equivalent.

Courses

Predoctoral

84.109 Restorative Materials Laboratory 2 s.h.

Theory and manipulation of dental materials with basic applications. Same as 50.109.

84.110 Restorative Prosthodontic Techniques Lecture 3 s.h.

Technical procedures in construction of complete and removable partial dentures.

85.110 Restorative Prosthodontic Techniques Laboratory 3 s.h.

Laboratories exercises in construction of complete and removable partial dentures.

85.110 Restorative Prosthodontics 4 s.h.

Surgical and clinical experiences results examination, diagnosis, prognosis, and treatment of patients requiring complete and removable partial dentures.

Graduate

86.221 Couple Denture Seminar I 1 s.h.

Review of current research in principles, practices, and concepts of complete denture construction.

86.221 Removable Partial Denture Seminar I 1 s.h.

Review of current research in principles, practices, and concepts of removable partial denture construction.

84.227 Complete Denture Seminar II 1 s.h.

Review of past research in principles, practices, and concepts of complete denture construction.

84.228 Removable Partial Denture Seminar II 1 s.h.

Review of past research in principles, practices, and concepts of removable partial denture construction.

84.230 Research: Removable Prosthodontics 3 s.h.

Literature review, project preparation, and data collection for selected research project.

84.231 Thesis Preparation: Removable Prosthodontics 3 s.h.

Preparation and defense of thesis for research project.

94.240 Advanced Clinical Removable Prosthodontics 3 s.h.

Clinical treatment of patients requiring removable and reconstructive partial dentures.

94.241 Technical Methods: Removable Prosthodontics 3 s.h.

Assignment and evaluation of technical methods in construction of complete and removable partial dentures.

94.242 Practice Teaching: Removable Prosthodontics 3 s.h.

Clinical and classroom teaching experiences assigned by advisor.

94.250 Journal Club 3 s.h.

Review of current literature in prosthodontics.

94.251 Library Assignment: Removable Prosthodontics 3 s.h.

Discussion of assigned readings that are considered classic in removable prosthodontics literature.
College of Education

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Dean: Charles W. Case
Associate Deans: Bernard L. Van Dyke
Associate Deans: Robert M. Fitch, R. Jerold Sikes
Director, Iowa Testing Program: Leonard Faib
Director, Educational Placement: Judith D. Hendershot
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, N101 Slagle Hall.

General Requirements

Before being formally admitted to a Teacher Education Program, an undergraduate student must have:

- Been admitted to The University of Iowa as a degree candidate;
- Completed the American College Tests (ACT);
- Attained second semester standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses;
- Achieved a 2.3 grade-point average on all college course work and course work completed at The University of Iowa; and
- Submitted an Application for Admission to a Teacher Education Program.

Additional Requirements for Admission to Special Education

Students seeking a major in the elementary mentally retarded program must also earn a minor in elementary education. Students seeking a major in the secondary-level mentally retarded program do not need to complete a secondary major. For each of these programs students must first meet the general admission requirements of the undergraduate Teacher Education Program. Enrollment in each of the special education programs is limited to a fixed number of students. Applicants who meet the minimum general requirements for a Teacher Education Program are then chosen for each special education program on a competitive basis. The selection procedures are as follows:

- Application deadline is May 15 preceding the academic year in which the applicant plans to enroll.
- Applicants for the elementary mental retardation, secondary mental retardation, or preschool handicapped program will be ranked on the basis of cumulative college grade-point average. Further, students with documented successful experience with the handicapped will be given preference over applicants without experience. Forms for documenting successful experience may be obtained from the Division of Special Education. Students wishing to gain experience prior to applying should contact the Division of Special Education for a list of ways to gain such experiences in the Iowa City area.

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 in an area of specialization with a 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 on undergraduate work; 3.0 H.A.T. objective.

Students applying 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 and seek preliminary certification. Students selecting this route should not apply as special students. They must apply to the appropriate Teacher Education Program following the undergraduate admission procedure and must meet the general requirements stated in the undergraduate admission section.

Student Teaching

The final phase of the Teacher Education Program is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of students' experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with approval in advance.
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. Programs for urban student teaching include the CTSE Program (Cooperative Urban Teacher Education). This option is open to all education majors (bilingual, elementary, secondary, and special education) who 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 setting). The overseas sites currently available include: Ireland, England, Scotland, Wales, and Australia. In most locations, students are assisted with housing by the co-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 requirement may be met by completing 76:170 Human Relations for the Classroom Teacher.

Special Requirements

Students admitted to TEPS for the fall semester 1984 and thereafter must complete 76:206 Introduction to Microcomputers 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. This interest may arise from the idea of being better informed as a parent, as a taxpayer, or as a future member of a local board of education. Or; a given student may feel that such information would be supportive of a future career objective. The four available minors are general education, human relations, 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 in Teachings

The College of Education offers a Master of Arts degree on both a thesis and nonthesis basis in each of the divisions. The northfield M.A. program usually provides more specialized course work than is found in the M.A. thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral level 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 advanced academic achievement and research skills to their advisor or division as 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 outcomes and the use of the programs are similar to those above for the Master of Arts degrees.

Master of Arts in Teaching

The M.A.T. program is a 38 semester hour (minimum) nonthesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate programs. The program leads to a master's degree and certification as a secondary teacher in such fields as English, foreign languages, home economics, and science. A grade-point average of at least 3.0 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student's proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (not less than 30) 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 I.D.S. are the same as for the master's degree, except that 15 semester hours of resident work on campus are required in one 12-month period or in two summer sessions, and course work completed 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 originality and mastery of research skills in course work and research in the preparation and defense of a dissertation.

Professional Improvement

Students may be admitted to a professional improvement program for purposes of taking isolated course work rather than a degree program. This program provides for meeting the administrative and professional needs of persons seeking salary credits, who are undecided about career plans, or whose applications are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to this program rather than as degree candidates due to insufficient numbers, unclear degree objectives and the like, in order to permit registration in the University.

Bulletin

Prospective graduate students should write to the College of Education for its Bulletin, Advanced Study in Education, which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.
Support Units and Special Resources

The Computer Resources Laboratory offers hardware and consulting support for computer applications and instructional development related to our instruction 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, study titles, bibliographies, pamphlets, and non-print media such as filmsstrips, games, recordings, and on-line computer software. The laboratory also houses a 29,500-volume audiovisual collection.

The Audiovisual Production Laboratory houses a variety of instructional equipment and materials. It provides opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition, the laboratory staff member provides curricular services to schools and faculty of the College of Education for the production of color slides, overhead transparencies, and other materials related to instructional development.

The VISTA Production Laboratory offers a wide variety of audio and video services. These services range from equipment checkout and micro-teaching facility use to the design and production of high-quality audio and video 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, and related positions at all levels and in all fields. Services include individual counseling and group assistance with job search skills and employment opportunities, preparation for interviews, and placement procedures. The office also maintains a student placement file and offers opportunities to students with school recruiters on campus. An information center with resource books, working 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, CACR 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. The program offers in-service education and secondary schools. This department also conducts research studies in education research 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 39 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, by evaluation teams and adherence to policies and standards for continued membership. The University of Iowa and supports the office of the State Director of the Iowa NCA State Committee.

The Office of Research and Development provides support services for faculty research, development, and grant solicitation and coordination efforts. The office is part of the Division of Research and Development, which establishes internal and external policies and provides support services for the purposes 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 provide research and practical opportunities for students in counseling psychology.

University Hospital School is a University-affiliated facility and, as such, strives to provide a viable opportunity for the direct practice in developmentally disabled young people, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Teacher Certification Services

Although each state has its own teacher certification requirements, a majority of state certification agencies have entered into an agreement to issue certificates to applicants who have completed approved teacher education programs in institutions accredited by the North Central Association and the Teacher Education Accreditation Council of the College of Education.

The College of Education Office of Student Services provides Iowa application forms and certification assistance to all students completing Teacher Education Programs.

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 interests, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide graduate assistantships for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the special program in an area in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, his or her file is available for review by those responsible for selecting the assistantship(s) for the student's program. Applicant priorities are usually, but not always, made from within the program area of the assistantship.

Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs in the University of Iowa are eligible to apply, provided they meet the minimum requirements of the assistantships. The assistantships are for the academic year only, and are renewable for a limited number of times, and, at the present, provide stipends similar to those for other assistantships. Holders are assigned to work under the direction of a faculty member. Assistantships usually are for not less than 9 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), latest of recommendation, and scores on the Graduate Record Examination (GRE). Application materials are required. Application materials must be filed at 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 1.

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 holding Associate Dean Emeritus L.A. Van Dyke; Professors Emeriti John Heeter and John McEwan; the late Peter Moseselle, a University of Iowa alumnus; and the late Donald Sway, 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, unknown medical expenses. The borrower must be a senior or post-bachelor's student seeking teacher certification or a graduate student seeking an advanced degree or certification in the College of Education. 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. Further information and application forms can be obtained from the Director of College Development, Educational Placement Office, NSU 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 Darrie Memorial Award
- To an outstanding graduate student majoring in education whose specialization is in elementary education.

- Harvey H. Davis Award
- To an outstanding student in educational administration who has particularly demonstrated interest in the financing of public education.

- Howard R. Jones Achievement Award
- To an outstanding graduate student who has made a major contribution to 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 McMinnan Award
- To the outstanding candidate for an advanced degree in educational administration.

- Leonard A. Miller Memorial Award
- To an outstanding full-time M.A. student majoring in rehabilitation counseling.

- Paul C. Parker Award
- To 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 strong professional qualities. James and Coretta Scott 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 a Ph.D. or Psy.D. program.

- Janet R. Zober Memorial Award
- To an outstanding student preparing to teach the physical handicapped (including the hearing impaired).

Franklin Stone International Graduate Student Award
To an outstanding international student pursuing a Ph.D.

Faculty

Ninety-eight percent of the members of the faculty with academic rank hold 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 the 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.

Interdisciplinary Courses

75:000 Cooperative Education Internships

Education students participate in Cooperative Education internships in various career fields during work assignment semesters. Regular production is senior status major, with grade point average requirement of 3.0 and permission of supervisor and department head. Requirements vary; contact supervisor and department head for requirements.

75:190 Topics in Volunteer Work in the Schools

1-5 s.h.

Described to assist nonprofessional volunteers without salary in beginning work and develop proper methods to work with children in public schools. Devoted to an understanding of the role of volunteers in the school program, group planning and interviewing, problem solving, and general teaching techniques, focusing on the education of all students. Required in the semester to be taken simultaneously with the course. May be repeated.

75:170 Human Relations for the Classroom Teacher

3 s.h.

Described to improve understanding of various roles in the classroom. Includes studies of various ethical and moral dilemmas in the classroom, group dynamics, and current social issues. Discussion involves analysis of contemporary issues in education and their impact on public education. Emphasis is on understanding ethical dilemmas and the role education can play in the classroom.

75:180 Workshop: The Arts in Education

1 s.h.

Described to involve participation in the arts at times, with a focus on the arts’ role in the creation of an arts education for the 21st century. Various art forms and teaching strategies are emphasized. Emphasis is on an arts education in all grade levels and in all subject areas, and on the role of arts in education at the national and international level. Pre: Consent of instructor. May be repeated for credit.

75:199 Qualities of Alternative Learning Systems

3 s.h.

Described to examine the role of alternative learning systems in education and other human services specifically, to assess the compatibility of these trends with projected societal educational, social, economic, and political needs.

Counselor Education

Chair: Nicholas Coolidge
Co-Chair: Nicholas Coolidge, E. Richard Deutsch, Harold R. Enges, Albert R. Hood, David A. Argento

Professor emeritus: C. Faccio Obermann

Associate professor: Harold J. Adams, Dennis B. Malt, William A. Mathew, Ralph R. Roberts, Jr., Lorraine Fosdick, David M. Rosenblat

Assistant professors: Barbara Kenn, Diane Logan Thompson

Adjunct instructors: Arthur Schot, Ovide Termoan

Adjunct assistant professors: Nancy Baron, Ray Cooper, Cheryl Hertsholl, Phillip Jones, Jerry Smithson, Stuart Soper

Adjunct lecturer: Mary Meyers

Degree offered: M.A., Ed.S., PhD.

The College of Counselor Education is primarily involved in the training of practitioners and scholars at the graduate level, with degree programs in student development in postsecondary education, rehabilitation counseling, counseling, and human development, and substance abuse counseling. In addition, the college offers training in interviewing and interpersonal skills for students in other professional and graduate programs, as well as some basic courses in these areas for undergraduates.

Admission

Division Admissions Requirements for the Division of Education, Student Specialization, and Doctor of Philosophy

Applicants are typically expected to meet the following admission requirements:

- Completed graduate application form.
- Copies of official transcripts of all previous college work—undergraduate and graduate.

Official report of Graduate Record Examination (GRE) Aptitude Test scores—verbal and quantitative.

A statement of candidate's reasons for seeking an advanced degree in counselor education, including a statement of professional career objectives;
A personal or telephone interview may be requested.

Three current letters of recommendation from persons in a position to assess the applicant’s prospects for completing the M.A., Ed.S., or Ph.D., as well as 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.

Ed.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. Core 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 of candidates pursuing School Counseling. Any special admissions requirements are listed with individual programs.

Conditional Admissions

Applicants who do not meet all the minimum requirements for regular admission consideration may be admitted on a conditional basis if the faculty determines that there are strength and potential 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 semesters and earn a minimum cumulative grade-point average of 3.0.

Ph.D. Level—A student must complete 12 semester hours of core courses (approved by advisor) over two consecutive semesters and earn a minimum cumulative grade-point average of 3.3.

Application Deadlines

M.A. and Ed.S.—June 1 for fall semester (rehabilitation counseling only admits for fall semester); November 1 for spring semester, April 1 for summer session;

Ph.D.—March 1 for fall semester.

Applications must be complete before they will be reviewed. The applicant is responsible for providing a complete application dossier. Application forms may be picked up from the Division of Counselor Education Secretary, N338 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 accepted upon immediately after each deadline and applications will be notified in writing. Applicants who are accepted must reply in writing in order to maintain their admission status.

Maintaining Candidacy—M.A., Ed.S., and Ph.D.

All graduate students must meet the following standards in order to maintain their candidacy for degree:

Maintain a cumulative grade-point average level in their curriculum plan; M.A.—3.0, Ed.S.—3.5, Ph.D.—3.0.

Successful completion of practicum, internship, or equivalent professional experience;

Maintain professional behavior consistent with the AACD 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 session. Exceptions may be approved by the advisor.

NITE: All division students are reviewed annually.

Probationary 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 probationary status is not met, one 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 administration, 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 affairs or college teachers.

No specific program of undergraduate study or work experience is required for admission to the M.A. program. A personal interview is desirable, but not required.

Education Specialist

The Ed.S. program provides specialized professional preparation in college student development beyond the master’s level for persons not planning to enter doctoral study; to prepare candidates for positions such as associate dean or dean of students in a small college or director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling services, adult continuing education, external degree programs, and, with experience, as college teachers.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor educator, researcher, associate dean or dean of students, or as director of admissions, student activities, financial aid, student union, career planning and placement, residence halls, foreign student services, community college counseling services.
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 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 in all the divisions. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

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 in all the divisions. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Courses

TC 841 Making a Vocational-educational Choice 3 s.h.

Designed toward those students who are uncertain about their occupational and vocational goals. Emphasis is placed on understanding self, self-assessment, and self-evaluation, and the evaluation of the world of work.

TC 858 Student Development for Residence Hall Staff 1 s.h.

Designed to acquaint residence hall personnel with the appropriate conceptual background and practical skills for performing their responsibilities. Content varies according to specific development, helping skills, group leadership, and program development.

TC 880 Introduction to Peer Counseling 3 s.h.

Introduction and explanation of helper's counseling techniques (listening, empathy, reflecting) for personal interest or engaged in helping relationships with people in a professional setting.

TC 919 Career Guidance and Job Placement 3 s.h.

Career guidance and job placement techniques. Career stages and job search, students' job interests and skills, practical experience, and career placement. Possibility of co-op or field instruction.

TC 919 Process of Change and the Counselor 3 s.h.

Laboratory counselor learning styles, perspectives other than counselor's, counselor relationships in helping, attitude about change in counseling techniques. Prerequisite: consent of instructor.

TC 919 Race Relations and Ethnicity 3 s.h.

Exploration of sociopolitical and psychological aspects of human sexuality. Same as 49111, 49117, 49122.

TC 919 Treatment of Culturally Different Students 3 s.h.

Problems in counseling culturally different students in schools and social service settings. Relevant research on impact of cross-cultural background on learning and professional education. Same as 49123, consent of instructor.

TC 919 Education of the Gifted 3 s.h.

Socialization of the Gifted. Same as 39102.

TC 919 Developmental Health and Socialization 3 s.h.

Consideration of the role of education in socialization of society's members. Analysis of educational intervention measures in the promotion and interpretation of educational experiences for children. Same as 39110, consent of instructor.

TC 919 Psychological Aspects of Women's Roles 3 s.h.

Introduction to the psychological aspects of women's roles in society. Emphasis on individual, educational, and specific techniques.

TC 919 Microcounseling 3 s.h.

Focus on learning, motivating, facilitating, and controlling behavior. video tape utilized frequently.

TC 919 Workshop in Counseling Education 3 s.h.

Designed to meet collective needs for the continuing education of counselors and recent graduates.

TC 919 Introduction to Substance Abuse 3 s.h.

Considers the nature, treatment approaches, and drug classes, and specific information on pharmacology. Current trends in counseling or other life-threatening issues. Society, drug abuse, measurement, prevention, treatment.

TC 919 Group Process for Related Professions 3 s.h.

Group processes needed for personal and organizational development in educational settings. Experiences include group development and administration to meet the needs of students and community groups. Prerequisite: consent of instructor.

TC 919 Individual Instruction in Coeducational Educational Rehabilitation 3 s.h.

Prereq: consent of instructor.

TC 919 Rehabilitation Counseling for Related Professions 3 s.h.

Introduction to counseling theory and techniques for persons interested in entering rehabilitation professions that require them to engage in helping relationships with clients; experimental methods used in the design and delivery of these helping relationships.

TC 919 Survey of Research, Theory, and Practice in Group Counseling 3 s.h.

Survey of research, theory, and practice in group counseling and group therapy. Emphasis on the role of groups and counseling in the development and improvement of human behavior. Open only to graduate students in a variety of fields.

TC 919 Pre-Practicum in Counseling 1 s.h.

Field experience opportunity before or during the practicum in a school guidance center or other related agency.

TC 919 Assessment of Special Populations 1 s.h.

Orientation to the process and practice of assessing disabilities and learning disabilities for rehabilitation plans and development.

TC 919 Group Leadership in Human Sexuality 3 s.h.

Same as 49125, 49136. May be repeated.

TC 919 Foundations of Counseling 3 s.h.

Introduction to counseling process that describes philosophical basis, practice, and role of counseling. Emphasis on counseling theories. Prerequisite: consent of instructor.

TC 919 Professional Ethics in Counseling 3 s.h.

Introduction to the professional ethics that guide the work of counselors. Emphasis on the role of ethics in the counseling process and the ethical treatment of clients. Same as 49126, consent of instructor.
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 the B.S. degree. The B.A. degree requires four semesters of study or the equivalent in one foreign language. All other respects the B.A. and B.S. degree requirements are identical. Required by the elementary program only is:

228H6 Theory of Arithmetic

Required by both programs are the following foundations courses, which should be completed by the sophomore year:

7E/75 Educational Psychology and Measurement

7E/100 Introduction: Elementary and Early Childhood Teaching

7W/31 Audio-Visual Equipment for Instruction

7W/32 Introduction to Microcomputing for Teachers

A course in American history or American politics

Also required, usually completed during the junior or senior year, is the following:

7L/170 Human Relations for the Classroom Teacher

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 nurseries, and privately funded early childhood centers serving children from infancy to five-year-old children. 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 Endorsement 52 for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergartens and elementary level should elect the elementary education major as described in a subsequent section of the Catalog and its early childhood education area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 5-9 and 51. Students interested in dual certification as teachers of pre-kindergarten and kindergarteners and pre-school handicapped children should refer to "Special Education" in this section of the Catalog. Separate application for admission to this program must be made to the division of Special Education. A student who successfully completes this combination is eligible for Iowa Endorsements 53 and 9.

In addition to the foundations courses listed above, the following must be completed before student teaching:

17/100 Growth and Development of the Young Child

7P/106 Child Development

17/124 Nutrition Work with Children

(Same as 7L/102)

7E/120 Methods and Materials: Music for the Classroom Teacher

7E/122 Methods and Materials: Art for the Classroom Teacher

7E/123 Literature for Children I

7E/137 Methods: Early Childhood Education I

7E/92 Pre-Education Practicum, Pre-Kindergarten

(Co-requisite: 7E/157)

7E/167 Methods: Elementary Education II

7E/93 Pre-Education Practicum, Kindergarten and Early Elementary

(Co-requisite: 7E/167)

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow:

17/114 Parent-Child Relationships

7U/133 The Culturally Different in Educational Settings

or

7E/165 Methods: Multicultural Bilingual Education

or

7E/195 Multicultural Concepts and Educational Systems

7E/180 Development and Administration of Child Care Centers

Students must also take a minimum of three courses (9 semester hours) in one of the following areas of specialization: child and family services, the family, child development, and pre-school handicapped children. Copies of specialization requirements are available in the Division of Early Childhood and Elementary Education offices. These courses may be taken pass/fail 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 specialties 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 selected for the approval of the curriculum materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. The program's study is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed specifically to prepare students to teach kindergarten through sixth grade. Special sequences are also available for students seeking the pre-kindergarten/elementary endorsement and for those seeking approval for teaching in middle schools or junior high schools. Students interested in certification for elementary teaching and approval for special education should note the requirements for admission to each of these programs. Students interested in this concentration should submit an application to each program and these applications will be considered independently.

The foundations courses listed earlier in this section are required. All must be taken concurrently with 7E/100: Introduction to Elementary and Early Childhood Teaching, or its equivalent.

7E/91 Pre-Education Practicum, Elementary Education

(To meet the foundations requirements, graduate students may elect graduate education courses selected by their advisor.)

The student must complete the following elementary methods courses to be eligible for student teaching:

7E/146 Methods: Elementary School Language Arts

7E/155 Methods: Elementary School Social Studies

7E/152 Methods: Elementary School Science

7E/153 Methods: Elementary School Mathematics

7E/154 Methods: Elementary School Reading

An area of specialization is required in a teaching field. The area of specialization offered in elementary education, the arts in early childhood and elementary education, bilingual education, early childhood health education, elementary language arts, elementary mathematics, multicultural
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. Preparation will be given to those persons with interests in early years education, but it should be noted that the course work is based 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE.189 Development and Administration of Child Care</td>
<td>3.0</td>
</tr>
<tr>
<td>TE.264 Building Foundations for Reading Pre-Primary and Primary</td>
<td>2.3</td>
</tr>
<tr>
<td>TE.267 Curriculum Development in the Kindergarten and Early Primary</td>
<td>2.3</td>
</tr>
<tr>
<td>TE.269 Curriculum Development in Pre-Kindergarten</td>
<td>3.0</td>
</tr>
<tr>
<td>TE.240 Comparative Early Childhood Education</td>
<td>3.0</td>
</tr>
</tbody>
</table>

In addition, a course in each of the following two areas is required: parent-child relationships and family development, and child development and psychology. The remainder of the required 32 semester hours (20 with thesis) are electives mutually chosen by the student and the academic adviser.

Developing Reading

This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum).

The following are required of all candidates:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE.251 Reading Clinic: Teaching Techniques</td>
<td>2.3</td>
</tr>
<tr>
<td>TE.252 Reading Clinic: Teaching Practicum</td>
<td>2.3</td>
</tr>
<tr>
<td>TE.264 Building Foundations for Reading Pre-Primary and Primary</td>
<td>2.3</td>
</tr>
<tr>
<td>TE.385 Supervision of Intermediate Grades Reading, student educational methods</td>
<td>3.0</td>
</tr>
<tr>
<td>TSE.124 Supervision of High School Reading</td>
<td>2.3</td>
</tr>
<tr>
<td>TSE.252 Seminar: Secondary Reading or TSE.380 Seminar: Research and Current Issues (Reading)</td>
<td>arr</td>
</tr>
</tbody>
</table>

In addition, candidates must complete one or more courses each in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the adviser's approval.

Doctor of Philosophy

Early Childhood Education

The purpose of this program is to prepare students for college and university teaching and research positions in early childhood education and 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 needed for the dissertation. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the adviser and the dissertation chair.

As a general guideline, each student is expected to have a good general background in all facets of elementary school education and a very strong area of specialization in at least one facet. Courses selected in special areas are predetermined school administration, children's literature, early childhood, curriculum, language arts, mathematics, reading, and social studies. Each doctoral student must also complete a cognate or related field of concentration. The external field may be a professional specialization, such as educational psychology and measurement, special education, or general school administration; or it may be a subject field, such as English.
In addition, all students must demonstrate competency with respect to appropriate research tools, most commonly statistical analysis and data processing.

Assistantships
A number of teaching assistantships are available for graduate students pursuing advanced programs in early childhood and elementary education. Specific assignments vary. Some involve supervising undergraduates, design projects in practice, and some involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half time. This classification permits students to register for a maximum of 12 semester hours of credit per semester. Graduate students with assistantships must register for a minimum of 6 semester hours per semester.

All assistantships are awarded on a competitive basis. To be considered for an assistantship an applicant must have been admitted to regular status in the Graduate College and must have been accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Courses

TEL-C Growth and Motor Development 2 s.h.
Theoretical base for elementary physical education. Developmental processes and motor competence in children. Prerequisite: Consent of instructor. Same as TEL-C 27.

TEL-C Methods and Materials: Elementary School Physical Education 4 s.h.
Thorough and systematic planning for elementary school physical education. For physical education majors only. Offered every fall semester. Prerequisite: TEL-C 27 or consent of instructor. Same as TEL-C 30.

TEL-C Pre-Professional Practicum, Elementary Education 2 s.h.
200-300 hours per week working with children and teachers in elementary schools. Assignments to advance experience required. Same as TEL-C 30.

TEL-C Pre-Professional Practicum, Elementary Education 1 s.h.
Variable, credit per half-year day or week working with children in a pre-professional setting. Open only to early childhood education majors. Assignments to advance experience required. Same as TEL-C 30.

TEL-C Pre-Professional Practicum, Kindergarten and Early Elementary 2 s.h.
Student spends two half-days per week teaching in a kindergarten and teacher in a K-3 setting. Open only to early childhood education majors. Assignments to advance experience required. Same as TEL-16.

TEL-C Introduction: Elementary and Early Childhood Teaching 3 s.h.
Overview of elementary and early childhood education including strategies for interpersonal, general organizational, developmental and special needs. Prerequisite: Consent of instructor. Same as TEL-C 30.

TEL-C Introduction to Education 3 s.h.
Basic concepts and skills of education including administration, interpersonal procedures, and professional ethics. Prerequisite: Consent of instructor. Same as TEL-C 30.

TEL-C Nutrition Work with Children 1/2 s.h.
Approaches and techniques currently used in nutrition work with children. Prerequisite: TEL-C 151 or consent of instructor. Same as TEL-C 155.

TEL-C Administration and Curriculum in Physical Education 3 s.h.
Offered only in even-numbered years. Prerequisite: TEL-C 151. Consent of instructor.

TEL-C Essential Methods in Speech and Hearing 3 s.h.
Emphasis on elementary grades, usually taken in conjunction with TEL-C 155, which provides approximately 30 hours of supervised clinical practice in elementary schools. Prerequisite: Speech 109. Consent of instructor.

TEL-C Introduction to Environmental Studies for All Grades 3 s.h.
Introduction to materials and activities available for introducing environmental studies in the K-12 curriculum. Emphasis on activities that are applicable in the supporting curriculum in each grade. Same as TEL-C 159.

TEL-C Beginning Folk Guitar 2 s.h.
Development of guitar and base, folk skills. Prerequisite: consent of instructor.

TEL-C Methods and Materials for the Classroom Teacher 3 s.h.
Development of basic skills, techniques, and knowledge of materials and methods for teaching music in young children. For elementary and early childhood education majors only. Same as TEL-C 30.

TEL-C Methods and Materials for the Classroom Teacher 3 s.h.
Practice, techniques, and processes are set for elementary and secondary teachers. Units include teaching methods and principles, curriculum planning, assessment, and studies of interactions and trends in literature. Same as TEL-C 30.

TEL-C Methods and Materials of Teaching Children’s Dance 2 s.h.
Practical creative movement experiences for the elementary school child. Same as TEL-C 30.111.

TEL-C Literature and Storytelling for Children 3 s.h.
Selection of children’s books appropriate for extending and enriching emphasis on specific and practical techniques available for successfully developing creative playwrights children throughout from grade back and habits in story literature. Same as TEL-C 30.

TEL-C Language and Storytelling for Children 3 s.h.
Selection of children’s books appropriate for extending and enriching emphasis on specific and practical techniques available for successfully developing creative playwrights children throughout from grade back and habits in story literature. Same as TEL-C 30.

TEL-C Parent Teacher Communication 3 s.h.
Offered during the summer. Prerequisite: TEL-C 1011.

TEL-C Special Education for Classroom Teachers in Early Childhood and Elementary Education 3 s.h.
Major topics: taxonomy and pros for the regular classroom teacher, the inclusion of T.E. of special education; specific disabilities; coordination with other services; and the assessment of children with special needs. Prerequisite: TEL-C 1011 or consent of instructor. Same as TEL-C 30.

TEL-C Physical Education for the Elementary School 3 s.h.
Preparation for students, classroom teachers and administrators. Includes study of program development, methodology, evaluation staff, social skill development, health education, and the evaluation of the teaching program. Same as TEL-C 30.

TEL-C Assessment of the Child as a Bilingual 3 s.h.
Topics include language and cultural development, discrimination, interaction, and the role of the educational psychologist. Same as TEL-C 30.

TEL-C Methods: Art 3 s.h.
Assessment of methods and techniques in teaching the arts in Elementary Schools. Course Program. Prerequisite: TEL-C 30.

TEL-C Methods and Materials: Elementary School Instrumental Music 2 s.h.
Materials, techniques, and methods for teaching band and orchestra in the elementary school.

TEL-C Methods and Materials: Elementary School General Music 3 s.h.
For choral music education and music motion music teaching certification. Elective course for instrumental music majors. Prerequisites: TEL-C 151 for music majors.

TEL-C Music Human Services for Health Instruction 3 s.h.
Introduction to stress, research, rationale, and methodology of health promotion; application of research and clinical work developed and conducted by the School of Education Committee. Same as TEL-C 114.

TEL-C Methods: Reading to Bilingual and ESL Programs 3 s.h.
Addressing reading problems faced by limited English proficient students. Experiences in new materials and activities to meet the needs of this student population. Special attention will be given to the integration of bilingual education theory and methodology.

TEL-C Methods: Early Childhood Education I 2 s.h.
Accumulate with all courses available in the curriculum areas, emphasis on applications of educational theory and classroom materials in pre-kindergarten care and education.

TEL-C Early Childhood Education Special Projects 1-3 s.h.
For pre-kindergarten, kindergarten and primary teachers, experience, and consultants emphasis on curriculum, methodology, and materials. Selected content values with current issues. Developments, needs of students. May be repeated for credit.

TEL-C Methods: Elementary School Language Arts 3 s.h.
Emphasis on planning processes and development of problem-solving teaching units. Approaches to personal self-discovery through creative dramatics and creative writing, and to language development, creation, production, and active use of the written and oral communication.

TEL-C Methods: Elementary School Social Studies 3 s.h.
An introduction to using social studies skills in the social studies classroom. Emphasis on the development of work study skills and process.

TEL-C Methods: Elementary School Sciences 3 s.h.
Principles and concepts of science instruction in elementary school classroom. Emphasis on the development of laboratory techniques and skills that characterize new approaches to science. Prerequisite: TEL-C 30.

TEL-C Methods: Elementary School Mathematics 3 s.h.
Mathematics skill in grades and guides one through time, including calculators and algebraic operations. Emphasis on instruction through the development of work study skills and process.

TEL-C Methods: Nuclear and Biological Sciences 3 s.h.
Instruction in the use of methods to reconstruct and interpret scientific data in the sciences through the microscope. Emphasis on cognitive and reflective actions of the teaching process, including curriculum and measure development and teaching practice.

TEL-C Methods: Early Childhood Education II 3 s.h.
Acquaint with contemporary educational literacy in all curricular areas, special emphasis on applications of educational theory and an instructional materials for kindergartens and first and second grades.

TEL-C Classroom Management 1-3 s.h.
Workshop analyzing activities, techniques, strategies, and classroom process to effective classroom management. May be repeated for credit.

TEL-C Reading Clinic: Teaching Techniques 2-3 s.h.
Dyslexic and pre-primary teaching techniques and remedial reading curricula for children at levels of remedial instruction. Prerequisites: TEL-C 154, TEL-C 155, or TEL-C 156. Corequisites: TEL-C 152.
Course Requirements

With this in mind, the advisors prepare a plan of study including these core requirements:

All Candidates

- T0301 Foundations of School Administration 3 s.h.
- T0293 Computer Applications in Education 2-3 s.h.
- T0285 Leadership of Students with Special Needs 3 s.h.
- T0261 The Principalship 3 s.h.
- T0258 Legal Aspects of School Personnel 3 s.h.
- T0352 Supervision of Instruction 2-3 s.h.
- T0300 Design and Organization of Curriculum 3 s.h.

The student must meet the human relations requirement of the State of Iowa and specialize in elementary, secondary, middle school/junior high, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the adviser to satisfy degree requirements.

Elementary Level

Required

- T0258 Contemporary Management Strategies for the Elementary Principal 3 s.h.
- T0302 Field Service Project in Educational Administration (elementary) arr.

Electives

- T011 Philosophies of Education 2, 3, 5 s.h.
- T180 Introduction to Educational Measurement 3 s.h.
- T0282 School Organization Patterns 3 s.h.
- T0276 General Techniques of Teaching Science in the Elementary School 3 s.h.
- T0277 Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
- T0303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
- T0329 Seminar: Supervision and Administration 2-3 s.h.
- T0381 Analysis and Approval of Curriculum 2-3 s.h.
- T0299 Supervision of Elementary School Administration 3 s.h.
- T0261 Supervision of Elementary School Social Studies 3 s.h.
- T0263 Supervision of Elementary School Mathematics 2-3 s.h.
- T0290 Supervision of Intermediate Grade Teaching 3 s.h.
- T0288 Curriculum Development in the Pre-Kindergarten 3 s.h.
- T0291 Supervision of Student Teachers and Auxiliaries 2-3 s.h.

Middle School/Junior High Level

Required

- T0285 Contemporary Management Strategies for the Middle School/Junior High School Principal 3 s.h.
- T0281 Field Service Project in Educational Administration (middle school/junior high) arr.

Electives

- Electives selected with the consent of the adviser from elementary and secondary levels to reflect a balanced program.

Secondary Level

Required

- T0258 Contemporary Management Strategies for the Secondary Principal 3 s.h.
- T0258 Field Service Project in Educational Administration (secondary) arr.

Electives

- T011 Philosophies of Education 2, 3, 5 s.h.
- T181 Educational Psychology 3 s.h.
- T183 Introduction to Statistical Methods 3 s.h.
- T0282 Collective Bargaining 3 s.h.
- T0286 Personnel Management 3 s.h.
- T0286 Curriculum Foundations 2-3 s.h.
- T0286 Administration of Students with Special Needs 2 s.h.
- T0295 Construction and Use of Evaluation Instruments 2-3 s.h.
- T0282 School Organization Patterns 2-3 s.h.
- T0291 Issues and Ethics in Counseling 2-3 s.h.
- T0281 Improving Instruction in the Secondary School 2-3 s.h.
- T0292 Administration of Educational Programs and Personnel 2-3 s.h.
- T0286 Financial Management of Local School System 3 s.h.
- T0287 Administrative Leadership Theory 4 s.h.
- T0291 Legal Aspects of School Administration 2-3 s.h.
- T0294 Seminar: Supervision and Administration 2-3 s.h.

Central Staff Administration

Required

- T0290 Introduction to Statistical Methods 3 s.h.
- T0283 Computer Applications in Education 2-3 s.h.
- T0286 Financial Management of Local School Systems 3 s.h.
- T0290 Supervision of Intermediate Grade Teaching 3 s.h.

Electives

- To be selected with the approval of the adviser.

Thesis

A student electing the M.A. program with thesis must take T0280 M.A. Thesis in Educational Administration and a final oral examination on the thesis.

Comprehensive Examinations

The student takes two three-hour examinations in areas of emphasis selected with the approval of his or her 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 as principals, superintendents, 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

- T0291 Administration of Educational Program and Personnel 4 s.h.
- T0294 Politics and Economics of the Governance and Financing of Public Education 4 s.h.
- T0297 Administrative Leadership Theory 4 s.h.
- T0299 Legal Aspects of School Administration 2-3 s.h.
- T0295 Educational Specialist Research in Educational Administration arr.

Program Emphasis

Students must complete the balance of the minimum required semester hours (total 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

- T0255 Introduction to Educational Measurement 3 s.h.
- T0282 School Organization Patterns 3 s.h.
- T0294 Issues and Ethics in Counseling 2-3 s.h.

Middle School/Junior High Administration

- T0281 Improving Instruction in the Middle School/Junior High School 3 s.h.
T2D304 Seminar: Supervision and Administration 2.0 s.h.
T2C279 Issues and Ethics in Counseling 2.0 s.h.
T2P156 Introduction to Educational Measurement 3.0 s.h.
Secondary School Administration
T2P156 Introduction to Educational Measurement 3.0 s.h.
T2D290 Improving Instruction in the Secondary School 3.0 s.h.
T2C279 Issues and Ethics in Counseling 2.0 s.h.
General School Administration
T2D285 Collective Bargaining in Education 3.0 s.h.
T2D292 Planning and Utilization of Educational Facilities 3.0 s.h.
T2D285 Financial Management of Local School Systems 3.0 s.h.
T2D375 Educational Administration Practice arr.
T2P143 Introduction to Statistical Methods 3.0 s.h.

Cog-nizes
The student must complete a minimum of 6 semester hours earning a cognate relationship to educational administration, subject to the advisor's approval.

Electives
The student chooses electives completing the 60-hour-hour requirement for the Ed.S. degree. In the program for general or central staff administration, the student may choose electives for specializations as such fields as student 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 either in educational administration or in a related cognate field. Students must be registered in the Graduate College at the time of the exam. No Ph.D. comprehensive examinations will be held during summer sessions.

Doctor of Philosophy
The purpose of this program is to prepare students for positions at all levels of school administration, to conduct research in educational administration, and to teach at the college or university level. All prior preparation and experience is carefully analyzed and a sequence of courses determined to best equip individuals for their career objectives. As a general guideline, the student is expected to have a general background in professional education, educational administration, and an area of specialization in at least one 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 in at least one aspect of educational administration, cognate study, research competences, 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 programs and personnel, politics and economics of the governance and financing of public education, administrative leadership theory, and advanced methodology and quantitative analysis.

Comprehensive Examinations
Doctoral students must satisfactorily complete an extensive 6-hour comprehensive examination. This examination covers the six common areas of educational administration and a three-hour examination based on the student's areas of specialization that is approved by the student's advisor and the division chair. Students must have completed the doctoral core courses and/or be enrolled to complete the research component to sit for the comprehensive examination. Students must be registered in the Graduate College at the time of the exam. No Ph.D. comprehensive examinations will be held during summer session.

Students 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 program 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 registration prerequisites for specific courses. The student should consult approximately 12 semester hours is one area of 30-semester hours before requiring a comprehensive examination. If the student decides to use a field within educational administration as a refined comprehensive area, the student should plan to complete approximately 18 semester hours of diversified course 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 must be made in a meeting of the thesis committee. Dissertation prospectus meetings will be held before summer sessions.

Completion of the Dissertation and Final Examination
The student must accumulate from six to ten semester hours of dissertation research credit. The doctoral program culminates with final oral defense of the dissertation. The student usually takes the examination within a month of his or her anticipated time of graduation. The student must be registered at the University during the semester in which he or she graduates.

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
T2D201 Foundations of School Administration 3.0 s.h.
T2D221 Personality and Administration of Educational Policy Makers 2.5 s.h.
T2D242 Educational Psychology 3.0 s.h.
T2D243 Educational Data Processing and Information Systems 2.0 s.h.
T2D244 Educational Systems Analysis and Operations Research 2.0 s.h.
T2D250 Educational Administration 2.5 s.h.
T2D251 Educational Administration Practice 3.0 s.h.
T2D290 Improving Instruction in the Secondary School 3.0 s.h.
T2D292 Analysis of Educational Data Processing and Information Systems 2.0 s.h.
T2D300 Educational Administration 3.0 s.h.
T2D301 Educational Administration 3.0 s.h.
T2D302 Educational Administration 3.0 s.h.
T2D375 Educational Administration Practice 3.0 s.h.
T2D375 Educational Administration Practice 3.0 s.h.
Foundations, Postsecondary and Continuing Education

Chair: William E. Dully
Assistant professors: David B. Bix, Charles M. Major, Beverly R. Melady, J. W. M. Madsin, Bevin O. Nash, Joyce A. Russi
Adjunct assistant professor: Steve Amsden
Adjunct associate professors: Arnold W. Duffin, Leslie M. McKee, W. W. Nelson, Mecha Missi

The programs in the division are designed to prepare administrators and professional personnel as well as teachers 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 as stated by 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 54 semester hours. Students are required to take a minimum of 24 semester hours in social foundations, 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, one of which must be in one of the area of concentration, such as educational administration, educational psychology, measurement and evaluation, and post-secondary and continuing education.

Applicants must hold a baccalaureate degree and demonstrate, through course work, preparation in educational leadership, or other professional experience, that they have the background necessary for success in the program. Applicants may also present evidence of professional experience in educational leadership or other professional experience in educational leadership, or other professional experience, that they have the background necessary for success in the program. Applicants may also present evidence of professional experience in educational leadership, counseling, or other professional experience, that they have the background necessary for success in the program.

The two research tools are required and are selected from the following options in consultation with the individual student's research interests and program: two courses in graduate level statistics sequence; philosophy of science and philosophy of social science; historiography; foreign language(s) proficiency exam.

In addition, all students are required to successfully complete TF 410 Seminar: Alternative Research Strategies or TF 428 Research in Higher Education. Dissertation research is normally taken for 12 to 15 semester hours of credit.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex net of phenomena. The academic programs in the division encompass that complexity. Degrees are offered at all levels and there is emphasis on both research and practice. Preparation for various levels of the graduate and professional education are available. The teaching, research, and service activities of the faculty, and the work of the graduates of the several 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 skill 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, or, e.g., dental assisting, medical office assisting, or, respiratory therapy; an undergraduate education major is planned upon this base, and provides work in professional education and the liberal studies curriculum to prepare to students to wish to acquire a baccalaureate degree.
Applications to this program must satisfy criteria for admission in the Teacher Education Program (TEP) of the College of Education.

Program requirements:

Professional Education Component

TP 75 Educational Psychology and Measurement 3 s.h.

TW 31 Audiovisual Equipment for Instruction 1 s.h.

TW 92 Introduction to Microcomputer for Teachers 1 s.h.

TW 112 Teaching within the Exceptional Education Classroom 3 s.h.

TW 117 Foundations of Vocational Education 2 s.h.

TW 150 Seminar: Health Occupations Education 1 s.h.

TW 191 Community College Teaching Internship 12 s.h.

or

TW 391 Observation and Laboratory Practice in the Secondary School 12 s.h.

71 192 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 health education to keep up with their educational goals. In addition, students must meet counseling requirements stipulating an American government or U.S. history course and a human relations course.

Master of Arts Without Thesis

The purpose of the M.A. program in higher education is to prepare individuals for entry- and middle-level administrative, curricular, and instruction, or continuing education in two- and four-year institutions, and are appropriate for positions such as assistant dean, business manager, director of admissions, assistant to the president, director of administrative services, division or program chair in selected areas.

Admission

Applicants for admission must satisfy the requirements of the Graduate College. Candidates selected on the basis of grade-point average, Graduate Record Examination (GRE), Aptitude Test scores, and promise for professional growth, transcripts, 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 advisor early in their studies. Pass of this examination will be developed individually.

Education Specialist

The E.D.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 necessarily planning to complete 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 36 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 E.D.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. Must be 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 71 395 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 general.

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 E.D.S. major in higher education with emphasis in college teaching are:

At least 51 semester hours in professional education and related fields appropriate for college teaching including a structured internship.

71 270 Intern Seminar 1-3 s.h.

71 390 College Teaching Internship 1-3 s.h.

71 172 Post-High School Staff Development Workshop 1-2 s.h.

TW 31 Audiovisual Equipment for Instruction 1 s.h.

TW 150 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 71 395 Educational Specialist Research in Higher Education for 4 semester hours.

Comprehensive Examination:

An examination of the nature of postsecondary institutions and student characteristics, the professional responsibilities of a faculty member, and the candidate's ability to organize the subject matter into select appropriate teaching strategies.

An examination in the candidate's teaching field, written and administered by faculty in that field, followed by oral examination.

Related Field

Students majoring in another field who want to complete a related field in higher education should consult with the higher education advisor 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.
college, and usually gather data for their Ed.D. research project during the internship. Participants must be willing to travel to a community college and reside there for the one-semester program. Some internships are recommended at nearby community colleges, but preference will be given to those willing to travel for that experience.

Doctor of Philosophy

The Ph.D. program continues to attract persons who are likely to serve as administrators, teachers, and researchers in postsecondary institutions or related public or private agencies.

The program offers four areas of concentration: general administration, curriculum and instruction (academic administration), community college, and continuing education (adult education). The program requires a minimum of 90 semester hours beyond the baccalaureate.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours of credit in that area. Ordinarily the candidate chooses a related field of 9 to 12 semester hours or a minor (approximately 30 semester hours), which may be met by appropriate previous course work at the M.A. level that complements the area of concentration. The dissertation research (12 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program, and give the student the opportunity to specialize in one or more fields of interest.

While the typical program places heavy emphasis on administration at both the theoretical and applied levels, the student is expected to take coursework outside the division, using the flexibility of the program to major in areas of other interest.

Comprehensive examinations for the doctorate cover the general area of higher education as well as the specific area of concentration, minor and/or related field, and dissertation research.

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts from the GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended and may be required.

Iowa Community College Certification

To qualify for a professional certificate with authorization to teach in an arts and sciences field of an area community college, the student must hold a master's degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college. Preparation must include 6 semester hours of professional preparation appropriate for college teaching. Two semester hours of American history or government are required for this certification.

The following courses fulfill the requirement:

75121 The Community College 2.5-3.0 hours
75120 Intern Shreema 5 hours
75115 Post-High School Staff Development Workshop 1-2 hours
75114 Teaching of Adults 3 hours
75105 College Teaching Internship 5 hours

In addition, applicants for certification must have completed an approved human relations course for 3 semester hours of credit.

A master's degree in the student's teaching area is required for certification in arts and science areas.

Facilities

A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

Social Foundations and Professional Education

75-27 Analysis for Decision Making 3.0 hours

Basic principles and methods of analysis drawn from public policy and decision science. Application to individual, organizational, and public policy decisions. Completion of capstone requirements.

75-16 Education, Politics, and Culture of Related Southeast Asian 3.0 hours

Prerequisites differ among educational institutions and are subject to change.

75-24 Survey of American Education 3.0 hours

Survey of American education, historical background of the educational system, and trends and issues of the current educational system.

75-165 Educational Foundations 3.0 hours

Survey of historical development of American educational institutions and policies. Historical development and educational issues. Focus on seven different perspectives and topics.

75-166 Educational Foundations 3.0 hours

Survey of American educational institutions and policies. Historical development and educational issues. Focus on seven different perspectives and topics.

75-166 The Third World 3.0 hours

Survey of educational development and related issues, including the role of the media, multinational corporations, and development projects. In addition, an examination of educational development currently facing Third World governments.

75-166 History of Education 3.0 hours

History of education in East Asia, China, Japan, and India, and their relevance with reference to contemporary educational issues in those countries.

75-167 History of Western Education 2.0 hours

The development of educational philosophy of significant individuals in the history of education and the relevance of their ideas to a better understanding of contemporary educational practice in the United States.

75-117 Philosophy of Education 1.0, 2.5 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.

75-109 Educational Sociology 1.0, 2.0 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.

75-109 Educational Psychology 1.0, 2.0 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.

75-109 Educational Psychology 1.0, 2.0 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.

75-110 Philosophy of Science 1.0, 2.0 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.

75-110 Philosophy of Science 1.0, 2.0 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.

75-110 Philosophy of Science 1.0, 2.0 hours

Introduction to the major philosophical foundations of educational philosophy and their impact on contemporary educational practice in the United States and other countries.
Psychological and Quantitative Foundations

Chad: Lowell A. Schon
Professor Emeritus: Walter E. Coles, Joseph H. Munsil, James R. Sexton
Associate professors: Betsi Bitman, Barry D. Butte, Charles Chibnall, Carl Davis, Richard Elders, Craig L. Gerde, James E. Hend, Rosa Blata L. Legan, David Lehman, William B. Oglesby, Colette Riker
Associate professor emeritus: Lib C. Cooligan
Adjunct professor: David Freinkel, E. James Massey, Ming-Mei Wang
Assistant professors: Stephen Alam, Timothy Anesty, Stephen Dusart, David A. Russell, Kathleen Kems, G瘋st Wachholz, Donald H. Vastthom
Adjunct assistant professor: Robert L. Brower, Cynthia Dvorak, Richard Ferguson, Philip Langholt, Mildred R. Lavin
Adjunct assistant professor emeritus: Calvin Stover
Instructors: Paula Brandt, Caleb S. Meher, Russell J. Degoff, Robert P. Freiber, James L. Risch
The division offers programs in five areas: educational psychology, counseling psychology, research disabilities, educational measurement and statistics, and instructional design and technology. The general goals of these programs are to help students acquire the knowledge and skills necessary to function effectively in settings that require the application of psychological and applied-learning principles, and to extend knowledge and understanding of the teaching/learning process as it occurs in a variety of settings. Although the major emphasis in the M.A. and Ed.D. programs is on the first of these goals and that in the Ph.D. program is on the second, there is some emphasis on both goals in all programs.

Undergraduate Course Work

The division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor selected by the student will aid in choosing courses totaling 18 or more semester hours that must be in the major field of study. The 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" section of the Catalog). TP-25 Elementary Statistics and Inference may be used to satisfy this requirement.

Graduate Programs

Master of Arts

Educational Psychology

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, cognition/learning, motivation, socialization/personality, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds. Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of course work. The degree with thesis requires a minimum of 38 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require TP-143 Introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program must take the M.A. degree with thesis. Students plan the minor of the program in consultation with their advisors, choosing courses from the following four-hour areas: human development, cognition/learning, motivation, and socialization/personality. Students must take at least one course in each of these areas. The faculty encourages students to enroll in at least two courses outside the division.

The program consists of six hours of comprehensive examinations consisting of either two three-hour or two three-hour examinations. The three-hour exam calls for a minimum of two courses in each area tested, but three courses are recommended. The two-hour exam calls for a minimum of two courses in each area tested. The comprehensive exam is planned jointly by the student and advisor and must be approved by the division.

The admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. The faculty reviews applications as they are received.

Educational Measurement and Statistics

A Master of Arts degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Such positions occur in research centers, testing services, and other agencies of local, state, and federal 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, educational statistics, measurement and computer science, mathematics, and counseling.

The final comprehensive examinations include three-hour examinations in educational measurement and in applied statistics. The major requires of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area: two-hour examinations assume a minimum of two courses in the area.

Grade-point-average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate's score for the quantitative, verbal, or analytical section of the Graduate Record Examination (GRE) General Test is less than 500, the applicant will not be admitted. However, if there is offsetting evidence of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least three 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 accept entrance doctoral programs in the field of reading.

The nonthesis program requires a minimum of 30 semester hours including the following core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP 170</td>
<td>Introduction to Psychology of Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 173</td>
<td>Diagnostic and Prescriptive Approaches to Reading Instruction K-12</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>TP 180</td>
<td>Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TQ 261</td>
<td>Individual Intelligence Testing</td>
<td>3-4 s.h.</td>
</tr>
</tbody>
</table>

Students must also complete at least 4 semester hours of practicum courses chosen with the advisor’s approval from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE 171</td>
<td>Reading Clinic: Teaching Techniques</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE 172</td>
<td>Reading Clinic: Teaching Practicum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE 271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE 272</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE 285</td>
<td>Reading Clinic Supervision</td>
<td>arr.</td>
</tr>
<tr>
<td>TP 270</td>
<td>Practicum in Reading Laboratory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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 audiology, 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP 143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 243</td>
<td>Intermediate Statistical Methods</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>TP 270</td>
<td>Advanced Psychology of Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 273</td>
<td>Reading Clinic: Diagnostic Practicum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TP 100</td>
<td>Introduction to Logistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 383</td>
<td>M.A. Thesis in Educational Psychology, Measurement, or Statistics</td>
<td>2-4 s.h.</td>
</tr>
</tbody>
</table>

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 six-hour 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, no sufficient evidence of superior ability is available, the applicant will be rejected or admitted only on a conditional basis. Applicants must have two years of approved teaching experience. The faculty reviews applications as they are received.

Instructional Design and Technology

The Master of Arts in Instructional Design and Technology is a 35 semester-hour program designed to provide basic knowledge and skills required to work in settings including schools, business and industry, hospitals, government, and private consulting agencies. It may be taken either with or without a thesis.

Regular admission requires a minimum grade-point average of 2.5 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-spring semester hour of course work taken after admission.

The degree requires the following course work or approved equivalents:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7W 103</td>
<td>Selection and Use of Media for Instruction</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7W 105</td>
<td>Design and Production of Media for Instruction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 107</td>
<td>Psychological Bases of Instructional Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7W 120</td>
<td>Introduction to Instructional Design and Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 150</td>
<td>Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7W 220</td>
<td>Advanced Instructional Design and Technology</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>7W 222</td>
<td>Instructional Strategies</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

If the degree is done with thesis, the student is also required to take TP 143 Introduction to Statistical Methods or TP 281 Research Methods in Instructional Design and Technology. In addition, all students must complete 9 semester hours of prescribed course work in one of the following areas:

<table>
<thead>
<tr>
<th>Area of Concentration</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom instruction</td>
<td>9-12 s.h.</td>
</tr>
<tr>
<td>Computer applications</td>
<td>3-6 s.h.</td>
</tr>
<tr>
<td>Health sciences education</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Instructional development</td>
<td>3-6 s.h.</td>
</tr>
<tr>
<td>Media center administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Media production</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>School media (Endorsement 39)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Training and human resource development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Visual studies</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Completion of the program also requires a six-hour set of final comprehensive examinations. These may be divided into either two- or three-hour parts distributed as follows:

<table>
<thead>
<tr>
<th>Area of Concentration</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General instructional design</td>
<td>2-3 hours</td>
</tr>
<tr>
<td>Area of emphasis</td>
<td>2-3 hours</td>
</tr>
<tr>
<td>Other</td>
<td>0-2 hours</td>
</tr>
</tbody>
</table>

Education Specialist in Instructional Design and Technology

The Education Specialist in Instructional Design and Technology is a 60 semester-hour program designed to provide specialized training beyond that provided by the M.A. program. The Ed.S. is ordinarily considered to be a terminal degree.

Admission to the Ed.S. program is the same as to the M.A. except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP 143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP 281</td>
<td>Research Methods in Instructional Design and Technology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Every student must also complete 15 semester hours of prescribed course work in one of the following areas:

<table>
<thead>
<tr>
<th>Area of Concentration</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom instruction</td>
<td>9-12 s.h.</td>
</tr>
<tr>
<td>Computer applications</td>
<td>3-6 s.h.</td>
</tr>
<tr>
<td>Health sciences education</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Instructional development</td>
<td>3-6 s.h.</td>
</tr>
<tr>
<td>Media center administration</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Doctor of Philosophy

Educational Psychology

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include professorships at the university and college levels, and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in the area of reading disabilities prepares students for careers as reading consultants, directors of reading clinics, and professors who train diagnostic and prescriptive reading specialists.

The program requires a minimum of 72 semester hours beyond the bachelor's degree and encompasses four substantive areas—human development, cognition/learning, motivation, and social/personality. Students must have at least two courses in cognition/learning, one of which must be at the 200 level, and one 200-level course in at least two of the other three areas—human development, motivation, and social/personality. In addition, the student must demonstrate substantial competence in all at least one of the substantive areas. A minimum demonstration of competence requires the successful completion of a three-hour comprehensive examination on the basis of five hours at the 200 level. Additional requirements include the following: 33-120 Research Methodology, a minimum of 6 semester hours of 200-level courses in statistics and one graduate-level course in measurement; and 10 semester hours of Ph.D. thesis credit. Alterations in these requirements for an individual student can be made with the approval of a three-member committee comprised of faculty members in the educational psychology program. Students are encouraged to take course work outside the university in education in their area of interest. Candidates who took the M.A. degree without thesis must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty. The candidate's program is planned jointly by the student and the advisor. The record of every student admitted to the program is reviewed each term. Any student or advisor may request a review of the program, either jointly or separately, and any changes or additions will be made.

Comprehensive are the same as those for the M.A.

Applicants for admission to the program should have an upperdivision major or minor in psychology or substantial undergraduate psychology course work, or a major in a related field; a grade-point average of 3.0 or above; Graduate Record Exam (GRE) Aptitude Test scores of 1200; a personal statement of interest in the program; and three letters of recommendation. All application materials must be received by February 1; students will be informed of the results by mid-March. Very few students are admitted to the doctoral program each year.

Educational Measurement and/or Statistics

The purpose of this doctoral program is to prepare students for professional responsibilities in the fields of educational measurement, program evaluation, and statistical methodology. Such positions generally occur in colleges and universities, state departments of education, large public and private school systems, testing agencies and research centers. Every student must complete the following core courses or their equivalents:

- 7P-130 Educational Psychology 3 a.h.
- 7P-223 Intermediate Statistics 4 a.h.
- 7P-146 Bayesian Statistics 4 a.h.
- 7P-221 Educational Research Methodology 3 a.h.
- 7P-205 Construction and Use of Evaluation Instruments 3 a.h.
- 7P-251 Educational Measurement and Evaluation 3 a.h.
- 7P-254 Correlation and Regression 3 a.h.
- 7P-255 Theory and Technique in Educational Measurement 3 a.h.
- 7P-256 Program Evaluation 3 a.h.

The program may suggest additional course work in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology. Students who concentrate in the area of statistics, with the intention of obtaining a Ph.D. degree, will be required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer programming techniques and processing equipment. Candidates who complete the program without completing an M.A. thesis must complete a substitute project approved by three members of the division faculty. The project must be completed before the writing of the Ph.D. comprehensive
examinations. A minimum of 90 semester hours is required for the degree, including 12 or more semester hours of thesis credit. The record of every student admitted to the program is reviewed after completion of approximately 18 semester hours of course work. The divisional faculty will consider course grades, evidence of critical and analytical skills, development since admission to the program, and promises for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three three-hour written examinations over the fields of applied statistics, educational measurement, and educational psychology or an approved substitute area. A qualitative area will generally be one in which the candidate has at least 9 semester hours of course work. In lieu of written examinations, the student's committee may assign a project involving analytical, evaluative skills, or research creativity. The written examinations are followed by oral examination in which the committee members may seek further evidence of the candidate's command of the three fields. A single decision is rendered in all aspects of the comprehensive examinations.

Applicants for admission to the program must have 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 score on the verbal, quantitative, or analytical sections of the Graduate Record Examination (GRE), General Test, is less than 500 and there is no offsetting evidence of superior ability, the applicant will be expected to demonstrate the ability to undertake graduate work 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 graduate study. At least one full-time professional engagement in teaching, research, or a related field is highly desirable. The facility reserves the right to use any other published 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 educational services, and in supervisory positions of remedial reading programs in larger school systems.

The course requirements are essentially the same as those for the doctoral program in educational psychology. The elective courses, however, will include those pertinent to the area of reading and relevant courses offered by the divisions of speech and hearing, remedial education, and elementary education, and secondary education, and the departments of speech pathology and audiology, linguistics, and psychology. One of the comprehensive examinations must be in the area of reading disability. The admission requirements are the same as those for the Ph.D. program in educational psychology.

Instructional Design and Technology

The Ph.D. in instructional design and technology is a 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.D. 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 interests in the field of study and the program at the University of Iowa, areas of desired study, tentative future phase, and any additional information that may be helpful in the admission process.

It is also recommended that applicants for the Ph.D. degree arrange a personal interview with program faculty members after submitting admission forms. All students in the Ph.D. program must complete the following course work or approved equivalent: 1. M.A. core without statistics, plus: 77:420 Introduction to Statistical Methods 77:422b Selected Applications of Statistical Methods 77:202 Research Methods in Instructional Design and Technology Six semester hours of research-related course work.

In addition, the program requires completion of 15 semester hours in one of the following areas: Computer applications Health and special education instructional development Training and human resource development Visual studies All students are also required to complete 9 semester hours in one area outside the College of Education.

Before writing comprehensive examinations each student must submit a formal paper that reflects his or her ability to organize and write about a topic at the level that will be expected for the dissertation. This paper may be submitted by a committee of three members of the faculty in the instructional design and technology program.

All students must successfully pass a nine-hour test or oral comprehensive examinations. These examinations are divided into three, four, five-hour segments distributed as follows: General instructional design 5-6 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. These are typically half-time academic year appointments, and all 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 supported by the Iowa Testing Program. Duties are varied, including such responsibilities as test development, test norming, and counseling with teachers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs that are not specific to the instructional design and technology program. These opportunities should be directed to the program director.

Courses

Educational Psychology, Measurement, and Statistics

76:08 Educational Statistics and Survey Data 3 h.
76:16 Educational Statistics and Social Research 3 h.
76:17 Educational Statistics and Research 3 h.
76:18 Educational Statistics and Research 3 h.
76:19 Educational Statistics and Research 3 h.
76:20 Educational Statistics and Research 3 h.
76:21 Educational Statistics and Research 3 h.
76:22 Educational Statistics and Research 3 h.
76:23 Educational Statistics and Research 3 h.
76:24 Educational Statistics and Research 3 h.
76:25 Educational Statistics and Research 3 h.
76:26 Educational Statistics and Research 3 h.
76:27 Educational Statistics and Research 3 h.
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76:72 Educational Statistics and Research 3 h.
76:73 Educational Statistics and Research 3 h.
76:74 Educational Statistics and Research 3 h.
76:75 Educational Statistics and Research 3 h.
Psychological and Quantitative Foundations/EDUCATION 299

TP301 Cognitive Processes in Classroom Learning 3 s.h.

TP302 Categorization in Children: Piagetian Theory 3 s.h.

TP303 Advanced Theories of Motivation 3 s.h.

TP304 Advanced Topic in Educational Psychology: Statistical Analysis 3 s.h.

TP305 Educational Psychology: School Psychology 3 s.h.

TP306 Advanced Topic in Educational Psychology: Educational Measurement and Assessment 3 s.h.

TP307 Developmental Psychology and Statistics 3 s.h.

TP308 Behaviorism in Educational Psychology 3 s.h.

TP309 Professional Ethics and Issues in Educational Psychology 3 s.h.

TP310 Instructional Design and Technology 3 s.h.

TP311 Seminar: Educational Psychology Research 3 s.h.

TP312 Seminar: Social Psychology of Education 3 s.h.

TP313 Seminar: Cognitive Psychology 3 s.h.

TP314 Seminar: Child Development 3 s.h.

TP315 Seminar: Educational Measurement and Evaluation 3 s.h.

TP316 Advanced Design and Production of Media for Instruction 3 s.h.

TP317 Psychological Bases of Instructional Design 3 s.h.

TP318 Social Psychology of Education 3 s.h.

TP319 Educational Technology 3 s.h.

TP321 Educational Psychology 3 s.h.

TP322 Educational Psychology 3 s.h.

TP323 Educational Psychology 3 s.h.

TP324 Educational Psychology 3 s.h.

TP325 Educational Psychology 3 s.h.

TP326 Educational Psychology 3 s.h.

TP327 Educational Psychology 3 s.h.

TP328 Educational Psychology 3 s.h.

TP329 Educational Psychology 3 s.h.

TP330 Educational Psychology 3 s.h.

TP331 Educational Psychology 3 s.h.
and implementation, techniques, documentation, utilization, and interdisciplinarity. Prerequisite: PSYCH 215.

7W-220 Advanced Instructional Design and Technology 3 s.h.
Advanced study of the instructional design processes with heavy emphasis on current instructional theories. Prerequisites: PSYCH 210 and 212.

7W-221 Instructional Strategies 3 s.h.
Review of the literature on instructional strategies, including large and small group activities. 7W-220 course studies with emphasis on issues related to design strategies and evaluation. Prerequisite: PSYCH 210 or consent of instructor.

7W-230 Computer-Based Instructional Systems 3 s.h.
Design and development of interactive computer programs, including authoring programs and various group activities. 7W-220 course studies with emphasis on issues related to design strategies and evaluation. Prerequisite: PSYCH 210 or consent of instructor.

7W-231 Advanced Topics in Computer Assisted Instruction 1-6 s.h.
An advanced treatment of research and development activities in computer-assisted instruction. Prerequisite: consent of instructor.

7W-238 Graphic Communications 3 s.h.
Theory and practice for preparing educational and instructional graphics, neglecting art of graphic design and materials, design, layout, lettering, and graphic design techniques, emphasis on practical applications. Prerequisites: PSYCH 210 and 212; plus one core course in instructional design.

7W-298 Advanced Computer Graphics 3 s.h.
Incorporate at least two techniques common to content and technology. Hidden line removal, animation, programming utility is assumed. Prerequisite: PSYCH 210 or consent of instructor.

7W-500 Administration of Educational Media 3 s.h.
Principles of organizational and personnel management as they apply to the media programs. Prerequisites: 7W-210 and 212; or equivalent.

7W-241 Leadership and Management in Health Education 3 s.h.
Examination of organizational and management perspectives on leadership in the health sciences, emphasis on technical and practical aspects of management. Prerequisites: 7W-210 and 212; or equivalent.

7W-261 Research Methods in Instructional Design and Technology 3 s.h.
Research practices, experimental design considerations, and virtual realities. Qualitative and quantitative analyses. 7W-210 or equivalent. Prerequisites: 7W-210 and 212; or equivalent.

7W-265 Learning and Teaching in Health Sciences 4-5 s.h.
Evidence-based clinical teaching models that result in improved patient care and outcomes. Evaluation of effectiveness. 7W-210 or equivalent. Prerequisite: 7W-210; or equivalent.

7W-266 Consultation Theory and Practice 3-5 s.h.
Application of consultation theory and practice. Emphasis on the strategies and techniques used in effective consultation. Prerequisite: 7W-210; or equivalent.

7W-280 Survey of Research in Instructional Design and Technology 3 s.h.
Survey of research on the instructional sciences, communication technologies, and message design as related to instruction.

7W-282 Special Topics in Health Sciences Education 3 s.h.
Study of special topics of concern to individuals in health sciences education.

7W-283 Independent Study Instructional Design for Neyers 1-6 s.h.
Opportunity to investigate issues of specific interest to the student. Prerequisite: consent of instructor.

7W-299 Practicum in Instructional Design and Technology 1-6 s.h.
Supervised experience in specific areas of interest. Prerequisite: consent of instructor.

7W-305 Internship in Instructional Design and Technology 3-6 s.h.
Supervised administrative and other non-teaching experience in public schools, social agencies, higher education, or industry. Prerequisite: consent of instructor.

7W-321 seminar in Instructional Design and Technology 3 s.h.
Survey of current literature and trends. Prerequisite: 7W-210; or equivalent.

7W-325 Seminar in Visual Learning, Thinking, and Communication 3 s.h.
Theory of visual learning, thinking, and communication from applied and multidisciplinary perspectives. Emphasis on visualization and improvement of processes of instruction and communication and the role of visual media in teaching.

7W-370 Topical Seminar in Instructional Design and Technology 3 s.h.
May be repeated. Same as 7W-280.

7W-380 A.J. Project in Instructional Design and Technology 1-6 s.h.
Project in instructional design and technology. Prerequisites: consent of instructor.

7W-386 E.D. Project in Instructional Design and Technology 1-6 s.h.
Prerequisite: consent of instructor.

7W-450 M.A. Thesis in Instructional Design and Technology 3 s.h.
Prerequisite: consent of instructor.

7W-451 Ph.D. Thesis in Instructional Design and Technology 3 s.h.
Prerequisite: consent of instructor.

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### Secondary Education

**Teacherr 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 Undergraduate catalog. Students may be admitted to a program leading to teacher certification as "certification only" candidates in the Graduate College and are subject to all policies, rules, and regulations of that college.

Certification requires a major of at least 36 semester hours of course work in a subject area taught in the secondary schools.

Core requirements for each major are available in the catalog of Secondary Education Office, N235 Lindquist 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 those areas.

Secondary school teacher preparation programs are provided in the following areas:

- **Art**
- **Athletic Training**
- **Counseling**
- **Communication Studies (Speech)**
- **English**
- **Foreign Languages—Spanish, French, German, Russian, and Latin**
- **Health Education**
- **Home Economics**
- **Journalism**
- **Mathematics**
- **Music**
- **Physical Education**
- **Reading**
- **Science**, including general science, physical science, biology, chemistry, physics, and earth science.
- **Social Science**, including social studies education, geography, history, political science, psychology, and sociology
- **Available as one additional approved area only. A major in another subject matter area is required for certification.**

Undergraduates 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 to teach in secondary schools must complete the following requirements, in addition to the requirements in their major:

**One of the courses: 7W-390**, **Introduction to Teaching in a specific subject with 7W-390**

- **Psychology** and **Measurement** 3 s.h.
Admission
Prior to taking most pre-educational education courses (courses numbered 25, 26, or 26) undergraduate students must be admitted to the Teacher Education Program (TEP). Application materials must be filed by the student in the College of Liberal Arts Office of Academic Programs, 135 Liberal Arts Hall. 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 2.3. Admission decisions will also be based on grade-point average in the major, and other criteria relevant to teaching success. If at any time after admission the grade-point average falls below 2.3, the student will lose eligibility for the TEP. Students should consult a College of Liberal Arts advisor in their subject major field, or the Division of Secondary Education Office, N205 Lindquist Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for "certification only" do not have to apply for admission to the Teacher Education Program. Their admission to "certification only" automatically implies admission to the TEP.
Upon admission to the TEP, students will be assigned an education advisor.

Admission to Student Teaching
While admission to the TEP, which permits students to take certain College of Education courses, requires a 2.3 cumulative grade-point average, for most majors higher criteria must be met for admission to student teaching. Students should consult their secondary education advisor on the College of Education office for the student teaching admission requirements for their certification program.

Graduate Programs
The Division of Secondary Education offers, or it may be adapted with departments in the Liberal Arts, three major degree programs in the following fields of specialization: education, communication, studies education, curriculum and supervision, developmental reading, English education, foreign language education, home economics education, mathematics education, music education, physical education, science education, and social studies education. It is possible, if the student's major program is approved by the TEP, for students to complete a program in Education and Master of Arts. For special requirements, please contact the College of Liberal Arts Office of Academic Programs, 135 Liberal Arts Hall, for additional information.

Art Education
Master of Arts
The master's degree program is designed to provide students with a strong background in art and history with the cooperation of the College of Education and the College of Liberal Arts. It is a major area of specialization for students seeking admission to the School of Art and History. The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The program is offered in cooperation with the College of Liberal Arts Advanced degree programs in the following fields of specialization: education, communication, studies education, curriculum and supervision, developmental reading, English education, foreign language education, home economics education, mathematics education, music education, physical education, science education, and social studies education.

Admission
Applicants must have completed the equivalent of the minimum course work in art required by the B.A. or B.F.A. degree in art from The University of Iowa and a certificate to teach art. Applicants must be enrolled in a representative portfolio of the candidate's work consisting of eight slides reproductions of art work and one example of written work. The written work may be a paper previously written for a course or it may be an original essay. The portfolio should be submitted in the College of Education Office, 130 North Hall.

In the case of coursework in art, specific work taken in the department of fine arts is required, and the candidate must have taken at least 15 semester hours in the School of Art and History, 15 semester hours in art
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 the whole course and tool courses; 76:306 or 76:305 Introduction to Research in Art Education.

Comprehensive examinations, both oral and written. The written examination consists of a problem chosen by the examining committee 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 of 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 requirements. 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 which must be taken at The University of Iowa.

Two graduate courses in communication education.

Two graduate courses in a second division of the department.

Introduction to Research, 76:300.

A graduate seminar involving significant research, and

Other courses recommended by advisor and student.

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.):

TP:198 Curriculum Foundations 2-3 a.h.
TP:117 Philosophies of Education (or its equivalent) 2 a.h.
TP:257 Educational Measurement and Evaluation 3 a.h.

or

TP:255 Construction and Use of Evaluation Instrument 3 a.h.

or

TP:150 Introduction to Educational Measurement 3 a.h.

TP:281 Junior High School and Junior High School Curriculum 3 a.h.

TP:294 Secondary School Curriculum 3 a.h.

TP:350 Design and Organization of Curriculum 3 a.h.

Research tool—a selection in consultation with the advisor, typically:

TP:143 Introduction to Statistical Methods 3 a.h.

Cogates (4-6 a.h.); in a subject field such as English.

Electives—a selection in consultation with the advisor to complete a total of 30-32 semester hours.

Thesis—students electing a thesis program.

TP: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 three 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.):

TP:198 Curriculum Foundations 2-3 a.h.
76:281 Junior High School and Junior High School Curriculum 3 a.h.
76:294 Secondary School Curriculum 3 a.h.
76:350 Design and Organization of Curriculum 3 a.h.
76:391 Problems of Curriculum Planning 3 a.h.

At least two advanced supervision courses in secondary or elementary school subject fields 6 a.h.

TP:257 Educational Measurement and Evaluation 3 a.h.

or

TP:255 Construction and Use of Evaluation Instruments 3 a.h.

or

TP:150 Introduction to Educational Measurement 3 a.h.

TP:390 Problems in Supervision 2 a.h.

TP:293 Individual Instruction in Secondary Education (Practicum) 2 a.h.

A minimum of two research tools, typically statistics, data processing, research design, or foreign language 5-12 a.h.

Electives (2-25 a.h. to be chosen in consultation with advisor.)

Recommended electives include:

TP:130 Educational Sociology 2 a.h.
TP:117 Philosophies of Education 2 a.h.
TP:131 Educational Psychology 3 a.h.
TP:170 Introduction to Psychology of Reading 3 a.h.
TP:297 Administrative Leadership Theory 4 a.h.
7W:150 Introduction to Instructional Design and Technology 3 a.h.
7W:130 Exceptional Persons 3 a.h.

All doctoral candidates are required to complete at least 8 semester hours of graduate work in such areas as sociology, psychology, or political science.

75:405 Ph.D. Thesis 10-18 a.h.

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
specialists in kindergarten and grades 1 through 12. Successful completion of this program combined with four years successfully spent in the classroom 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 for high school English, to prepare teachers for 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 fiftieth percentile on the Graduate Record Examination (GRE). Aptitude Test. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

Students specialize in English education and one or two other areas. The other areas are: literature for young people; reading, composition, speech and drama, language development, visual and auditory literacy, literature and children's literature. An adviser and the student will plan the program of study. Nine semester hours must be earned in courses numbered 200 or above. The student will take a comprehensive examination in English education and in his/her chosen area(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 a minimum undergraduate grade-point average of 3.0. Since they are 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:
  - TP 131 Educational Psychology 3 s.h.
  - TP 137 History of Western Education 3 s.h.
  - TP 117 Philosophies of Education 2-3 s.h.
  - TP 191 Individual Projects in Laboratory Practice 1-3 s.h.
  - TP 190 Human Relations for the Classroom Teacher 3 s.h.
  - TP 104 Methods: High School Reading 3 s.h.
  - TP 105 Developing Reading Skills in the Secondary School 3 s.h.
  - Basic competency in microcomputing 3 s.h.
  - TP 115 Methods: English 3 s.h.
  - TP 187 Seminar: Curriculum and Student Teaching 2 s.h.
  - TP 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 fiftieth percentile on verbal test (500 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 credit hours. Students must maintain a 3.0 grade-point average while they are in the program. Their candidacy is reevaluated annually.

Degree Requirements

A minimum of 72 semester hours is required.

- Area of Specialization: Teaching of English (3-18 s.h.), including four of the following courses:
  - TP 200 Supervision of Elementary School Language Arts 3 s.h.
  - TP 202 Seminar: Research and Current Issues 3 s.h.

75.315 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.
Cognate and electives (56-63 s.h.) may include reading, school curriculum, philosophy for young people, literature of a particular period or genre, special education, educational theories, rhetoric and composition, linguistics, literary criticism, educational measurement, speech and dramatic arts. Student and adviser will select two areas of specialization in addition to the teaching of English. Areas of specialization will typically require a minimum of 9 semester hours of work in an area.

Facility in a research tool agreed upon by the student and adviser 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 philology courses in a foreign language department and the following professional education courses:
75.200 Introduction to Teaching
75.202 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 specializations 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>75.201</td>
<td>Teaching the Low Achiever in Mathematics</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>75.228</td>
<td>Teaching of algebra</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>75.320</td>
<td>Seminar Mathematics Education</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

Two courses selected from a cognate area in education. Suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.

Sufficient electives in mathematics and education selected with the approval of the advisor to complete 32 semester hours of credit.

These two-hour courses are comprehensive examinations 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 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 40 to 60 semester hours.

The purpose of the program is to prepare supervisors, teacher educators, researchers, community college personnel, and researchers in mathematics education.

Admission

Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

Degree Requirements

The mathematics education program has the following degree requirements:

A minimum of 33 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including 249A.115, 252B.116, 252E.120, and 22M.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 adviser.

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 mathematics education and from other professional education courses appropriate to the candidate's career plan.

At the completion of the program, the student must:

- Have a cumulative grade-point average of 3.0 or above on all graduate work in mathematics,
- Have a grade-point average of 3.0 on all University of Iowa graduate work in mathematics,
- Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

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 cognitive area to select courses that will...
prepare the student for these examinations.

Competency in one computer language and in educational statistics is required.

A dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon competition of the dissertation, an oral examination will be conducted in defense of the dissertation. Normally, a student will be expected to earn a minimum of 10 semester hours of dissertation credit.

Music Education

Both the Master of Arts and Doctor of Philosophy degree programs in music education are administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

Master of Arts

The purpose of the program is to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum. The degree program may be taken with thesis (30 semester hours minimum) or without (36 semester hours minimum).

Admission

The student must be a certified music teacher or in the process of completing certification requirements. An undergraduate grade-point average of 2.5, exclusive of grades in music, is required for admission to regular status.

Degree Requirements

General requirements:
25:32 Introduction to Graduate Study in Music 2 s.h.

Music theory:
5:249 Introduction to Contemporary Analysis and Theory 3 s.h.
5:250-5:314 Elective 3 s.h.

Specific hour and course requirements in the theory and literature 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.

Music Education (12-17 a.h.)
75:144 Psychology of Music 2 s.h.
75:206 Curriculum/Development in Music Education 2 s.h.
75:240 Foundations of Music Education 2 s.h.
Electives to be selected in consultation with the advisor. (May include thesis) 4-9 s.h.
Two semester hours of ensemble credit.
Two-four semester hours of applied music.
The amount of elective credit applicable toward the M.A. degree is dependent upon the scores earned on the music advisory examinations and the amount of credit earned in music education elective courses. In the semester in which the student expects to complete the degree, the candidate must take a final written master's degree examination (12 semester hours). Areas of concentration covered in the examinations include music education, music history, and music theory and literature.

Doctor of Philosophy

The purpose of the program is to prepare students for teaching, research, and administrative functions in the following types of positions:
College or university music education classes and activities, band, chorus, and orchestras directors, and administrators of music departments and schools of music or
Public school positions—music supervisors, research and curriculum consultant, and directors of city or district school music programs.

Admission

Application is made to the School of Music. For admission, the Ph.D. program in music education a student must have a 3.25 grade-point average on graduate work (excluding grades in ensembles), have a score above the fiftieth percentile on the verbal ability section of the Graduate Record Examination (GRE) Aptitude Test, hold or be qualified for a valid teaching certificate, and have 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 finally determined.

Degree Requirements

The Ph.D. degree is granted on the basis of achievement (as determined by course grades and evaluations on the comprehensive and final examinations) and not on the accumulation of semester hours of credit. The course requirements and semester hours listed below are to be considered minimum requirements for the typical student in preparation for the satisfactory passing of the comprehensive and final examinations.

Music (21-29 s.h.)

General:
*25:521 Introduction to Graduate Study in Music 3 s.h.
*25:520 Introduction to Contemporary Analysis and Theory 3 s.h.
Elective (25:145-152) 3 s.h.
Music History and Literature:
*25:591 Advanced History and Literature of Music I 3 s.h.
*25:592 Advanced History and Literature of Music II 3 s.h.
Elective (25:203-314) 3 s.h.
Applied and Ensembles:
*Electives 0-2 s.h.

Music Education (29-24 s.h.)

*75:144 Psychophysics of Music 2 s.h.
75:145 Behavioral Research in Music 2 s.h.
75:206 Curriculum Development in Music Education 2 s.h.
75:240 Foundations of Music Education 2 s.h.
*Electives 5-7 s.h.
75:440 Social and Psychological Factors in Music Education 3 s.h.
75:141 Seminar: Contemporary Issues in Music Education 3 s.h.
75:142 Seminar: Special Topics in Music Education 3 s.h.
Education (8 s.h.)
7:141 Introduction to Statistical Methods 3 s.h.
7:142 Selected Applications of Statistical Techniques 3 s.h.
Elective 2 s.h.
*M.A. level requirements

Electives

Courses are selected in consultation with the student's advisor on basis of advisory examination scores and the student's professional goals and needs. Students take courses from applied music, ensemble, theory, history and literature, music education, education, statistics, and psychology to total 19 to 25 semester hours.

Dissertation

Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations

The comprehensive examination is an inclusive examination of the student's mathematical and 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. The examination is divided into follows:

Music education theory and practice and research techniques, music education theory and practice and research techniques.
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 science, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competency in the social sciences and greater proficiency in teaching and supervision.

Admission

Applicants must have a minimum of 20 semester hours of undergraduate credit in the area of history and/or the social sciences from an accredited institution, a cumulative grade-point average of 3.5 or a 3.0 grade-point average in history and social science courses, passed Graduate Record Examination (G.R.E.) Aptitude Test score of 1060 composite of verbal and quantitative.

Degree Requirements

Thirty-eight semester hours dedicated among history, social sciences, or related areas, with a minimum of 10 semester hours in each of the fields chosen; or
Thirty-eight semester hours distributed among the disciplines listed above and education.

Nine semester hours of the total 38 semester hours must consist of graduate courses numbered 200 or above, distributed in the fields selected for concentration.

A minimum of 23 semester hours of 400-level courses, 487-415, 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 disciplines 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 superintendents, 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; have a grade-point average of 3.0 or above. A minimum Graduate Record Examination (G.R.E.) Aptitude Test score of 1090 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent to a thesis. Theses must be written as part of the M.A. An interview is required prior to regular admission.

Degree Requirements

A minimum of 60 semester hours of course work and dissertation credit beyond the bachelor's degree and not including tool requirements.

The 90 semester hours are to be distributed among history, social sciences, or related areas, and professional education, depending on the background and goals of the candidate.

Seminars and courses numbered 200 or above are required in each of the areas of study constituting a program.

A minimum of 23 semester hours of 490-201, 490-202, or 752-293 must be completed with one of the faculty members of social studies education, unless other course work with these faculty members has been completed.

Tool requirements are assigned to the individual's program and may consist of foreign language or other requirements. Normally detailed plus research techniques in one or more of the fields chosen or a language is required.

Comprehensive Examinations—Normally three three-hour examinations, one in each of the areas of study, will be required. Depending on the distribution of the work taken, the six hours of written examinations may be rearranged.

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 examinations under the course of study considered by the candidate's committee. Dissertation:

A dissertation on a research problem in history, the social sciences, or related areas in which the candidate's dissertation advisor will be a faculty member of the appropriate department, or on a research problem in the social studies education, in which case the dissertation advisor will be a faculty member of the College of Education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion, an oral examination will be conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy: grade-point average of 3.0 plus annual renewal.

Assistantships

A limited number of half-time assistantships are available in the student teaching program. Students pursuing Ph.D. degrees in secondary education may be eligible for these assistantships.

Assistantships may range from 16 to 24 hours per week. In addition to the stipend provided, the student will receive assistance for tuition and fees. Assistance may be awarded to students pursuing course work, or in addition to the degree program.

The College of Education advises each student to discuss the availability of assistantships with the Dean of the College of Education prior to enrolment.

Courses

7300 Introduction to Teaching Art 2 s.h. (This course is required of all teaching majors. It may be taken for six hours in a cooperative school in addition to the required student teaching. Prerequisite: admission to the Teacher Education Program)

7350 Introduction to Teaching English and Speech 2 s.h. (This course is required of all teaching majors. It may be taken for six hours in a cooperative school in addition to the required student teaching. Prerequisite: admission to the Teacher Education Program)
75:92 Introduction to Teaching Foreign Languages

2 p.
Observing and teaching language teachers and students in secondary schools. Typically requires two to six hours per week in a cooperating school in addition to in-classroom class meetings. Prerequisite: admission to the Teacher Education Program.

75:93 Introduction to Teaching Human Sciences

2 p.
Observing and assisting human sciences teachers and students in secondary schools. Typically requires two to six hours per week in a cooperating school in addition to cooperative class meetings. Prerequisite: admission to the Teacher Education Program.

75:94 Introduction to Teaching Social Studies

2 p.
Observing and assisting social studies teachers and students in secondary schools. Typically requires two to six hours per week in a cooperating school in addition to cooperative class meetings. Prerequisite: admission to the Teacher Education Program.

75:100 Issues in Education

3 p.
Observing all comments on American secondary education and school systems as they relate to the purposes of education, school organization and administration, and social philosophy. Prerequisites: 75:101 and 75:210. Enrollment limited to 25.00 students. Taught in cursive letter script.

75:100 Workshop for Secondary School Teachers 1-2 p.
Selective workshop designed for teachers responsible for secondary educations, whether independent or not, for high schools, or middle schools, regardless of their specialty. Prerequisites: 75:101 and 75:210. Enrollment limited to 15.00 students. Taught in cursive letter script.

75:101 Introduction to Computer Programming for Teachers

2 p.
For secondary educators who wish to teach computer science or computer science-related courses to their students. Enrollment in the course is limited to 30.00 students. Taught in cursive letter script.

75:102 Advanced Methods in Physical Education

2 p.

75:103 Curriculum and Instruction in Physical Education

3 p.
Administration and development of physical education programs in both basic and nonbasic schools. Emphasis on making and evaluating instructional materials, observation, and evaluation. Prerequisites: 75:101 and 75:210. Enrollment limited to 20.00 students. Taught in cursive letter script.

75:106 Proficiency-Based Instructional Methods

2 p.

75:110 Practicum: Basic Instrument Care and Repair

1 p.
Practicum required for all instrumental music education majors. Required for high school and instrumental music education minors. Prerequisites: admission to teacher certification program. Enrollment limited to 20.00 students. Taught in cursive letter script.

75:140 Seminar: Contemporary Issues in Music Education

1 p.

75:142 Methods and Materials for Elementary School General Music

3 p.
Emphasis upon lesson planning, materials, and organization and planning of general music courses in junior and senior high school, and preparation of music for allied arts and humanities-related arts courses in senior high school.

75:142 Instrumental Techniques

3 p.

75:142 Psychology of Music

3 p.
Nature of basic perception, aesthetic response, musical abilities of children, and music learning.

75:144 Methods: Secondary Physical Education

4 p.
Emphasis on the physical education process, organization and administration, program planning, learning theory, management, and learnability. Prerequisites: 75:140 and 25:140. Enrollment limited to 15.00 students. Taught in cursive letter script.

75:147 Choral Conducting and Literature

3 p.
Advanced skills appropriate to choral conducting, analysis, and literature studies. Includes study and interpretation of music literature in the various choral and vocal styles. Enrollment limited to 15.00 students. Taught in cursive letter script.

75:149 Special Topics in Physical Education

2 p.
Specialized study subject to current research in physical education. Enrollment limited to 20.00 students. Taught in 25:20.

75:151 String and Methods in Music Education

3 p.

75:152 Methods: Advanced Methods in Instructional Science

2 p.
Study of the theory and science of curriculum with classroom practice. Students participate in a series of classroom teaching experiences. Enrollment limited to 15.00 students. Taught in cursive letter script.

75:152 Methods: Advanced Methods in Instructional Science

2 p.
Study of the theory and science of curriculum with classroom practice. Students participate in a series of classroom teaching experiences. Enrollment limited to 15.00 students. Taught in cursive letter script.

75:152 Methods: Advanced Methods in Instructional Science

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75:152 Methods: Advanced Methods in Instructional Science

2 p.
Study of the theory and science of curriculum with classroom practice. Students participate in a series of classroom teaching experiences. Enrollment limited to 15.00 students. Taught in cursive letter script.
Special Education

75:294 Seminar: Secondary Reading
2.5 s.h.
Analysis and evaluation of current research in secondary reading utilizing historical and comparative procedures. Prerequisites: 25:290 and consent of instructor.

75:296 Supervision Methods to Improve Instruction
3 s.h.
Actual and simulated school experiences to develop management skills in eliciting criteria, assessing instructional materials, and evaluating student progress. Prerequisites: 25:296 and 25:297. Consent of instructor required.

75:310 Introduction to Research in Art Education
3 s.h.
Methods of inquiry used for research in art education and related discipline: methods of research design. Required of all Ph.D. candidates in art education. Some as 51:310.

75:307 Seminar: Anthropology in Art Education
3 s.h.
Theories of aesthetics as related to teaching, instructional and learning models: models of aesthetic experience in visual and visual arts; aesthetic models as a way to address other disciplines in education, review of aesthetic, educational programs. May be repeated.

75:310 M.A. Seminar: English Education
3 s.h.
Discussion of significant developments in English education from primary and secondary teaching. Prerequisite: consent of instructor. Some as 53:310.

75:310 Seminar: Recent Developments in Literature for Adolescents
3 s.h.
Recent trends in curriculum and research studies of their choices. Offered one semester each year.

75:325 Seminar: Mathematics Education
3 s.h.
Analysis of current research, research methodologies, and curriculum developments in mathematics education. Topics vary. Prerequisite: M.S. candidate. May be repeated.

75:341 Seminar: Special Topics in Water for Education
3 s.h.
Seminar of research in the processing of water for educational purposes. Required of all graduate students with special interest in water. May be repeated.

75:343 Special Workshops in Water Education
1-5 s.h.
Weekly and summer workshops for practicing teachers in public schools and colleges. Offered in various locations and regularly during the academic year. May be repeated.

75:445 Public School Curriculum in Physical Education
3 s.h.
Trends and issues of major social, psychological, and biological issues influencing teaching and research in physical education. Prereq: 54:122 or consent of instructor.

75:506 Seminar: Science Education
3 s.h.
Science education for instructional faculties and advanced science teachers: research, nature of issues, program histories.

75:502 History of Science and the State in Science Education
3 s.h.

75:505 Science Education Internship: Program Development and Implementation
3 s.h.
Designed to provide practical experience for educators in science education. Prerequisite: 55:505. Consent of instructor.

75:506 Science Education Internship: Teacher Education Supervision and Administration
3 s.h.

75:507 Science Education Internship: Teaching and Learning Strategies
3 s.h.

75:508 Science Education: Research Models and Conceptual Schema Internship
3 s.h.

75:517 Seminar: Current Issues in Art Education
2.5 s.h.
Analysis of literature in art education and related disciplines. Required of all Ph.D. candidates in art education. May be repeated.

75:508 Current Research Emphasis in Science Education
3 s.h.
Review of significant on-going research programs in the field, emphasis on faculty line of research.

75:309 Problems in Science Curriculum Design
3 s.h.
Current issues of curriculum design clearly concerned with supervision; alternative possibilities for those who are in school instructional charges; designing curriculum revision systems.

75:307 Problems of Curriculum Planning
3 s.h.
Organizing and conducting programs of curriculum improvement: techniques for developing curriculum materials: includes final experience.

75:305 Field Studies Project in Secondary Education
2 s.h.
Prerequisite: consent of instructor.

75:306 Master's Degree Thesis
1 s.h.
Prerequisite: consent of instructor.

75:309 Specialist Specialized Research in Secondary Education
2 s.h.
Prerequisite: consent of instructor.

75:405 Seminar: Child Art and Art Education
3 s.h.

75:406 Research in Art Education
3 s.h.
Individual research under supervision: applicable to thesis preparation and to doctoral project development. May be repeated.

75:445 Research: Science Education
3 s.h.
Planning of individual research projects by M.S. and Ph.D. candidates.

75:495 Ph.D. Seminar: English Education
3 s.h.
Discussion and evaluation of current research and theory in education as it affects English in the secondary schools. May be repeated. Prerequisite: consent of instructor. Some as 49:495.

75:490 Social and Psychological Factors in Health Education
3 s.h.
Social and psychological factors that affect health choices and instructional practices in health; impact of all educational methods on student behavior; available to graduate students with permission of the instructor.

75:508 Ph.D. Thesis
1 s.h.
Prerequisite: consent of instructor.

Special Education

Claire Kenneth A. Carole
Professors: Alan B. Frank, Alfred Mealy, Clifford S. House, Kenneth A. Carole, T. M. Retzlaff
Assistant professors: Louise L. Brown, Stewart M. Wasko, Timothy C. Jenkins, John Kendy, Jr., David Wacker

Graduate assistant: Arlina J. Mcclenon

Assistant professors: Teresa K. Sohn, Gary M. Suen

Adjunct assistant professors: Audrey Mueller

Lectures: Danielle Cornell, Galitzitzn, Phyllis M. Naran, Mark Koelstrider

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

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 in the isolation 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:

1. 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;
2. To teach the mentally retarded at the secondary level (State of Iowa Approval 82, Endorsement 20); and
3. To teach preschool handicapped (State of Iowa Endorsement 89).

The elementary-level program requires that students also complete the requirements for certification in elementary education (the regular secondary level). Students must complete and be considered qualified for 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
75:130 Introduction to Assessment in Special Education
2 s.h.
75:130 Exceptional Persons
3 s.h.
75:130 Mental Retardation
3 s.h.
75:92 Introduction to Microcomputers
1 s.h.

Second Year
75:104 Teaching Mildly Mentally Retarded
3 s.h.
75:104 Teaching Moderately Mentally Retarded
3 s.h.
75:104 Practicum with Moderately Handicapped
2 s.h.

Third Year
75:180 Supervised Teaching with Mentally Retarded
3 s.h.
75:192 Practicum (3-9)
7 s.h.

Students completing this program will be recommended for State of Iowa Approval 81 (Menta Disabilities 9-22).
Elementary Physical Handicap
First Year
71.159 Orientation to Rehabilitation of Physically Handicapped Child 3 s.h.
71.158 Introduction to Speech and Hearing Problems and Disorders 3 s.h.
Second Year
71.130 Methods of Teaching Physically Handicapped 3 s.h.
Third Year
71.131 Supervised Teaching with Physically Handicapped 7 s.h.
Students completing this program are recommended for State of Iowa Approval 84 (Physical Disabilities K-9).

Secondary Mental Retardation
First Year
71.320 Introduction to Assessment in Special Education 2 s.h.
71.170 Exceptional Persons 3 s.h.
71.130 Mental Retardation 3 s.h.
71.100 Issues in Education 2 s.h.
71.159 Introduction to Teaching English and Speech 2 s.h.
71.75 Educational Psychology and Measurement 3 s.h.
71.61 Audiolingual Equipment for Instruction 1 s.h.
71.92 Introduction to Microcomputing for Teachers 1 s.h.
31.41 Introduction to Sociology: Principles 3 s.h.
31.42 Introduction to Sociology: Problems 1 s.h.
Second Year
71.32 Teaching Mildly Mentally Retarded Secondary 3 s.h.
71.38 Practicum in Mildly Handicapped 2 s.h.
71.139 Teaching Moderately Mentally Retarded 3 s.h.
71.34 Practicum in Moderately Handicapped 2 s.h.
71.31 The Culturally Different in Educational Settings 3 s.h.
71.160 Methods: Mathematics for Low Achievers 3 s.h.
71.195 Developing Reading Skills in the Secondary Schools 2-3 s.h.
71.150 Career Guidance and Job Placement (undergraduate cannot take this course by correspondence) 3 s.h.
71.170 Introduction to Psychology 3 s.h.
71.189 Selection and Use of Media 3 s.h.
31.440 Juvenile Delinquency 3 s.h.
31.440 Criminality 3 s.h.
71.131 Introduction to Learning Disabilities 3 s.h.
71.132 Introduction to Behavioral Disorders 3 s.h.
71.130 Human Relations for the Classroom Teacher 3 s.h.
A course on American history or American government 2 s.h.
Third Year
71.192 Supervised Teaching with Mentally Retarded 10 s.h.
Students completing this program are recommended for State of Iowa Endorsement 20 (Secondary Teaching) and Approval 81 (Mental Disabilities 7-12).

Preschool Handicap
First Year
71.20 Introduction to Assessment in Special Education 1 s.h.
71.130 Exceptional Persons 3 s.h.
71.130 Mental Retardation 3 s.h.
71.139 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
71.35 Introduction to Speech and Hearing Problems and Disorders 3 s.h.
71.268 Introduction to Microcomputing for Teachers 1 s.h.
Second Year
71.120 Methods of Teaching Preschool Handicapped 3 s.h.
71.36 Practicum with Preschool Handicapped 2 s.h.
71.136 Teaching Moderately Mentally Retarded 2 s.h.
71.150 Supervised Teaching with Preschool Handicapped 7 s.h.
Students completing this program will be recommended for State of Iowa Endorsement 90 in Preschool Handicapped.

Admission
Fifty-five students who have completed at least one year of college course work are admitted to special education each year. Admission decisions are based on cumulative college grade-point average and experience with the handicapped. Examples of acceptable experience (volunteer or paid) with handicapped persons are counseling in a summer camp program for the handicapped, working with the handicapped sponsored by community or religious organizations, extensive child-sttering with handicapped children, and assisting teachers in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

Graduate Programs
The purpose of the graduate programs in special education is to train new personnel and to retain existing staff, so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate programs have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee.
Graduate programs are offered for certification only at the M.A., Ed.S., and Ph.D. degree levels. Initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning disabilities or behavioral disorders, school psychology, work-study coordination, administration of special education, and teacher education.

Master of Arts
Most students admitted to the M.A. program in special education are seeking an approval to teach within the behaviorally disordered and emotionally disturbed areas. The M.A. program prepares students to function as teachers in resource, integrated, and self-contained classrooms. The program requires a minimum total of 38 semester hours. A list of required courses is available from the division office.
To be admitted to the M.A. program, students must be certified in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preference.
Some students who do not wish to seek certification may be attractively admitted to the M.A. program in special education.
Numbers admitted depend on the resources available.

Education Specialist
Special Education
The purpose of the program is to provide advanced graduate training for professionals in the field of special education. This may include individuals in consultation, supervisory work, and work-study coordination is special education. The program requires a minimum total of 30 semester hours.
In addition to the general graduate admission requirements listed below, requirements for admission to this program...
include a master's degree in special education or equivalent preparation and certification in special education; and a minimum of one year full-time teaching experience before admission to the program.

Special Education Administration
The primary objective of this educational Specialist program is to provide sufficient training for the applicant to enable graduates to obtain entry-level positions in administration. The career focus of the program is on middle management positions, such as supervisors and assistant directors. Successful completion of the program qualifies the person for certification in Iowa to serve as a director of special education (State of Iowa: Department of Education) or certification in general school administration (State of Iowa: Department 61). Graduates are certifiable and employable as administrators of special education throughout the Midwest and the nation. The program requires a minimum total of 60 semester hours of credit.

Admission Requirements
The deadline for application for admission to the special education program is February 15. Approximately ten students are selected each semester. Applicants should have at least a 3.5 grade-point average on previous course work.

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 is designed to study and practice extensively in their area of interest in special education. The program requires a minimum total of 90 semester hours.

In addition to the general admission requirements listed below, requirements for admission to the Ph.D. program include a master's degree or equivalent, a minimum of one year of full-time teaching experience with acceptance to an approved special education program, and graduate study in special education.

Financial Aid
A limited number of teaching and research assistantships are available to full-time students in M.A., Ed.S., and Ph.D. programs. The Janet Zober Memorial Tuition Stipend is available to an undergraduate student in special education.

Program of Study
The aim of the Ph.D. program is to provide comprehensive preparation for those individuals who desire to pursue an advanced degree in special education. The program requires a minimum total of 90 semester hours of credit. The program includes the following elements: credit hours, advanced elective courses, and a dissertation.

Doctoral Research
The purpose of the Ph.D. program is to provide comprehensive preparation for those individuals who desire to pursue an advanced degree in special education. The program requires a minimum total of 90 semester hours of credit. The program includes the following elements: credit hours, advanced elective courses, and a dissertation.

Courses
The courses in the Ph.D. program are designed to provide comprehensive preparation for those individuals who desire to pursue an advanced degree in special education. The program requires a minimum total of 90 semester hours of credit. The program includes the following elements: credit hours, advanced elective courses, and a dissertation.

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 is designed to study and practice extensively in their area of interest in special education. The program requires a minimum total of 90 semester hours.

In addition to the general admission requirements listed below, requirements for admission to the Ph.D. program include a master's degree or equivalent, a minimum of one year of full-time teaching experience with acceptance to an approved special education program, and graduate study in special education.

Financial Aid
A limited number of teaching and research assistantships are available to full-time students in M.A., Ed.S., and Ph.D. programs. The Janet Zober Memorial Tuition Stipend is available to an undergraduate student in special education.
enrollment in teacher training. Prerequisite: consent of instructor.

TL380 Supervision of School Psychology
Practicum/Internship
Practicum/practicum provides experience supervision, clinical
practicum/practicum students. Prerequisite: consent of instructor.

TL380 Field Service Project in Special
Education Internship
Practicum/practicum or full-time experience at a center in school
practicum/practicum agencies develops skills in supervision and administration of special
education. Prerequisite: consent of instructor.

TL385 Educational Specialist Research
Research involving design, data analysis, and writing-up of
research as culminating capstone courses for the M.S.
degree. Prerequisite: consent of instructor.

TL493 Ph.D. Thesis in Special Education
Prerequisite: consent of instructor.

TL494 Ph.D. Thesis in School Psychology
Prerequisite: consent of instructor.

Student teaching at West High School, Iowa City
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| Chemical and Materials Engineering | 325 |
| Civil and Environmental Engineering | 329 |
| Electrical and Computer Engineering | 333 |
| Engineering                      | 337 |
| Industrial and Management Engineering | 337 |
| Mechanical Engineering           | 341 |

Dean: Robert G. Heron
Associate dean: Paul D. Schults
Assistant to the Dean: Norte W. Boyd
Director, Institute of Hydraulics Research: John F. Kennedy
Director, Center for Materials Research: Y. King Liu
Director, Center for Computer-Aided Design: Edward I. Yang
Degrees offered: B.S.E., M.S., Ph.D.
Engineering is the profession in which a knowledge of the physical and mathematical sciences is applied to develop ways of economically utilizing the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include designing, producing, developing, researching, managing, 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 at a considerably more advanced level, and is expected to result in original contributions to the literature at the Ph.D. level.

Programs

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) in the following fields: 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 College of Liberal Arts. These combined degree programs normally may be completed in about five years. In addition, a minor in the College of Business Administration or a minor in minors in any degree-granting departmental or approved program by the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

Undergraduate Programs

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit, including satisfactory completion of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 56 semester hours and must have a minimum grade-point average of 2.0 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, the candidate must have completed 22M135 Engineering Calculus I and 22M136 Engineering Calculus II, or their equivalents, with a grade of "C" or better, in each.

Students who wish to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline date during the semester in which the degree is to be conferred. If a student does not graduate on the date indicated in the application, the student must fill another application for a degree for the next applicable session. Students do not need to be enrolled to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an Iowa resident applicant must have:

- Completed the American College Tests with a composite standard score of 24 or above and a standard score of 24 or above in mathematics (or equivalent SAT scores);
- Successfully completed at least one and one-half units of algebra, one unit of plane geometry, and one-half unit of trigonometry; and
- Ranked in the upper one-half of his or her high school graduating class.

Non-resident freshman applicants must have completed the same units of mathematics as required for resident applicants, and

- Ranked in the upper 30 percent of his or her graduating class, and

- Completed the American College Tests with a composite score of 25 or above and with a mathematics score of 25 or above (or equivalent SAT scores).

High school physics and chemistry are recommended for admission. 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 assure 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 curricular 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. Those who are in preparation for an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curricular programs is to provide as integrated educational experience directed toward development of the ability to apply pertinent knowledge to the investigation 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 primary parallel extension stages through most of the entire four years of undergraduate study. The stages 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 stages. 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 stages. The course sequence in this stem begins with 211 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 stages 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, and provides instruction and practice in speaking, writing, and critical reading. Most of the core courses are scheduled in the first two years. This permits the first semester of the freshman year to be entirely common and the first three semesters to be arranged so that a student may follow any program major, transfer between majors when eligible, or not declare a major during this period, with only minor adjustments in scheduling. This gives students time to become familiar with the various major areas before choosing a specific engineering program.

In addition to the core program and the humanities and social sciences sequence, which is also common to each program, each degree program specifies a required group of courses that provides a common depth and breadth of topics to every student in each of the curricular programs. These courses provide the common background that the faculty expects of every graduate. The remaining courses are technical electives chosen by the student in consultation with his or her academic advisor. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken at the senior level.

The curriculum for the freshman year is:

**First Semester**

**4.1 Principles of Chemistry I** 3 s.h.
**10.1 Rhetoric** 4 s.h.
**10.3 Rhetoric** 4 s.h.

**Second Semester**

**2.1 Principles of Chemistry Lab I** 2 s.h.
**10.2 Rhetoric** 4 s.h.
**or**
**Humantics or social science elective** 3 or 4 s.h.

**32.26 Mathematical Reasoning** 4 s.h.
**2.36 Engineering Calculus I** 4 s.h.

**Total** 15 s.h.

A maximum of 4 semester hours is allowed for substitution of an elective or rhetoric requirement. Students who qualify for 103 are able to satisfy the requirement with this single course, while those required to complete the 6 semester-hour sequence of 101-2 may apply only 4 semester hours toward their engineering program.

Credits earned for courses below the level of the beginning courses specified in each engineering curriculum will appear on a student's grade report and permanent record, but generally will not be used to satisfy any elective or required course requirements for an engineering degree. Examples of courses in this category include: rhetoric 101-2; 102-3, 201-2; 202-3; 203-4; and physics 294-2-201. The courses listed above are required of all students in engineering. 4.1 Principles of Chemistry I is recommended during the second semester for students who are biochemical or chemical engineering majors. Students in these majors normally complete taking 22.46 (Matrix Algebra for Engineers) before the fourth semester of the sophomore year. Students pursuing a major in industrial engineering should review the social science requirement specified for that major before selecting any social science courses.

**Humanities and Social Sciences Requirements**

The goal of the humanities and social sciences requirements is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student selects, with the advisor's approval, a minimum of 15 semester hours of humanities and social science courses that includes at least 6 semester hours of course work in the humanities and at least 6 semester hours in the social sciences. Because the social science courses in the industrial engineering major are specified and are not open to the same selection process, students considering a major in this program should consult the department and the industrial and management engineering program requirements presented later. Courses which are primarily mathematical or scientific in nature and those which are specifically designed to develop introductory language, mathematical thinking, or writing skills, art, music, or other skills that are not available as general elective credits even though they are offered through departments listed below.

The humanities electives may be selected from any of the following departments and schools: African-American World studies; American studies; art history; classics; Asian languages and literature; communication studies; theatre arts; English; history; literature; science; and the arts; music; philosophy; religion; linguistics; or other departments approved by the curriculum committee of the College of Engineering. Following an introductory level course, students select a minimum of 3 semester hours of advanced (100-level) course work to secure a broad depth of knowledge in an elected subject of study. This advanced course work should be taken in the same department as the introductory course unless prior permission has been obtained from the College of Engineering Curriculum Committee. Language courses will not satisfy any of the humanities requirements unless for courses are at or beyond the 200-level.

The social science electives may be selected from the following departments: anthropology, communication studies, theatre arts, economics, geography, political science, psychology, sociology, journalism and mass communication, and social work. Students may obtain approval for these course work by consulting with the curriculum committee of the College of Engineering. To assure an adequate depth of knowledge in a chosen area of study and following an introductory-level course, students select a minimum of 3 semester hours of advanced (100-level) course work. This advanced course work must be in the same department as the introductory course unless prior approval has been obtained from the College of Engineering curriculum committee.

**Combined College of Engineering-College of Liberal Arts Program**

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible for admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program are advised to the student advisor of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting the dean of the College of Engineering or the dean 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 who are enrolled in the combined program normally can meet all degree requirements of the 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 transfer to the student's program, in many cases, satisfying the requirements for two majors by taking one particular course.

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 transfer to the student's program, in many cases, satisfying the requirements for two majors by taking one particular course.

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 transfer to the student's program, in many cases, satisfying the requirements for two majors by taking one particular course.

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 transfer to the student's program, in many cases, satisfying the requirements for two majors by taking one particular course.
Combined College of Engineering-M.B.A. Program

An innovative program (M.B.A.) has been initiated by the College of Business Administration for superior undergraduate students who want to begin their M.B.A. studies while finishing their engineering degree. Strategically selected course work will allow such students to complete a bachelor's degree in four years and the M.B.A. degree in the fifth year. Exceptional students with 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 APT program must have completed two years of engineering study, earn a 3.5 grade-point average or better, and indicated their interest to pursue both degree programs simultaneously on a full-time basis.

Students selected for admission to the program may be candidates for $500 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 administered by the College of Engineering and the graduate fellowships by the College of Business Administration.

Admission to the APT program does not guarantee admission to the Graduate College. However, since the undergraduate admission requirements are very high and the admission procedures have been stringent, it is anticipated that admitted students should readily qualify for admission to the graduate M.B.A. program upon application.

A cooperative education internship requirement of two semesters is required for admitted M.B.A. students. This professional employment experience with private industry is considered to be an integral part of the program. The employment is generally scheduled for the summer semester of the completion of the bachelor's degree.

The M.B.A. curriculum is designed so that students with two years of course work in business are required. The program includes the three components: foundation courses, integrated core courses, and elective courses. The range of topics and selected courses are designed so that students with a bachelor's degree in mechanical engineering would complete all of their courses.

Engineers and 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 coordinating 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 life in cities and regions. Planners devise courses of action in response to a variety of problems and 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 the student to acquire a B.S. in engineering and an M.S. or M.A. in planning in a total of five academic years. In this accelerated program, course work is reduced by up to one academic year from the separate requirements for the two degrees. The student should apply for the joint program either when applying for admission to the engineering college or prior to the completion of his or her sophomore year following matriculation. Applications should be submitted to the Office of Undergraduate Engineering Program, College of Engineering, University of Iowa.

The curriculum is based on the general philosophy that planners must develop the technical and analytical skills that permit them to identify issues and recommend solutions to these issues, as well as the professional skills (e.g., report writing, presentations, and interviews) and computer literacy, team management that allow them to function effectively in various organizational and political environments. Students also must be well versed in topics such as economic and population forecasts, quantitative methods, information presentation techniques, and approaches to citizen involvement.

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 analysis of public and social issues. The core program is consistent with the curriculum guidelines for aerospace engineering studies in the last two years of the undergraduate program as social science and technical elective courses. Sectoral majors (areas of concentration) are organized around public policy problem areas and include transportation, housing, community development, environmental quality, urban infrastructure, and economic development. The student earns the sectoral major requirement by completing 3 semester hours of credit from each of these areas. Elective courses are offered in various departments and schools of the University, including the graduate planning program and the engineering college.

Each student is assigned an advisor from engineering and one from planning. During the first four years of the program, student work progresses under the guidance of an engineering advisor and a planning advisor under the coordination of the chair of the graduate engineering program of the College of Engineering. For the fifth year, students confer with their graduate planning advisor.

Two Bachelor's Degrees in the College of Engineering

Recent College of Engineering graduates and current students may earn two bachelor's degrees in engineering. The requirements for the second degree are to complete at least 30 additional semester hours of residence course work beyond the requirements of 128 semester hours for the first degree program and earn a minimum grade-point average of 2.0 or this additional work. The additional semester hours must include all courses required by the program selected for the second degree, including the senior level designed course sequence of the second degree program as well as any specific social science elective requirements.

The technical electives selected for the second degree program must be of a variety and level that permit the student to meet the minimal level of competence, normally expected of graduates of that program.

A student must file an academic plan of study which must be approved by the faculty of the second degree program and submitted to the office of the dean before initiating the core course work in the second degree program. The proposed academic plan of study should include a list of the courses to be taken in the second program along with a list of the courses already completed and yet to be completed for the first engineering degree program. The approved plan is to be submitted to the office of the dean and placed in the student's permanent file before the student begins course work in the second program. Approval of the plan is to be confirmed by the student's faculty advisor in the second degree program and the chair of that program (the current petition form is used for this purpose) and approved by 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 minors in any degree-granting department or approved program in the College of Liberal Arts. A notation of the minor will be made on the student's permanent record.

Students must inform the Registrar's Office of their fulfillment of minor requirements when they apply for a degree to assure that the minor designation is included on 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 ZM335 57-4, and ZS339, 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 refer to 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 workplace. 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 courses required during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by the cooperation of the professional work experience provided by participating employers and by student interest and ability to work the situation.

The insight gained by involvement in 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 nonacademic 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 advisers' 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 descending from A = 4.0. For a full description see "Academic Programs" as 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 shall not 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 'F' for any course dropped during the first three weeks of the semester or first one and one-half weeks of the summer session. To avoid excessive registrations and dropping of the same course, a student may not drop the same course with a mark of 'F' 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 taken on a credit/no credit basis are not subject to this rule.

Withdrawal of Registration

A student in good 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 hundred 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
as having been discarded for poor scholarship.
Withdrawal cards for students enrolled in the college will be signed by the assistant to the dean only after recommendation of the student’s adviser and department chair.

Pass-Nonpass Option
A maximum of two courses taken in the colleges of Liberal Arts or Business Administration on a pass-nonpass basis may be applied toward satisfaction of the humanities and social sciences requirement. Students who want to take such courses in liberal arts or business administration on a pass-nonpass basis must meet the conditions and follow the procedures specified by those colleges. The pass-nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass-nonpass basis under the following conditions:

- The signatures of the adviser and instructor must be obtained on the proper form and the completed form must be submitted to the registrar by the student within the time period established by university policy.
- The mark of P (pass) will be awarded where the final course grade earned was A, B, or C, the mark of N (nonpass) will be given for grades of D or F; marks of P and N are determined by converting a grade-point average and the mark of N will not count as earned hours.
- No course work taken in the College of Engineering under a pass-nonpass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option
A student may elect to repeat a course with only the new grade being counted in his or her grade-point average; the student may be elected only prior to completion of a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a prorated basis. For example, a student transferring no more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with between 42 and 86 semester hours of credit may use this option for no more than two courses, and students with 86 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Course
The noncredit professional seminar courses, that are required in each of the professional programs, are offered only on a satisfactory-fail basis. No other engineering courses are offered on this basis. No F (failure) grade earned for such a class will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades
A mark of I (incomplete) or W (no report) that is not replaced by a final grade prior to the announced deadline during the student’s next regular semester of registration will be replaced by a final grade of F (failure), with the 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, if applying for a bachelor's degree, complete 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 on 12 or more semester hours of graded work will make the dean's list. Students with grade-point averages of 3.5 or above during a given semester who are currently enrolled in another college of the University or who have transferred to the College of Engineering from other colleges other than the college of Liberal Arts and Sciences must be 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 or W grades standing on the current or past semester's record, are recognized by inclusion on the president's list.

Other College Policies
Advanced Placement Program
Students who have earned college-level courses in high school through the

Advanced Placement Program (AP) of the College Entrance Examination Board and achieved satisfactory scores on the comprehensive examination administered through the Advanced Placement Program will be awarded college level credit. For example, students earning scores of 3, 4 or 5 on an AB-level calculus course in the Advanced Placement Program will receive 4 semester hours of credit for course 22M-35, 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 22M-35 and 22M-36, Engineering Calculus I and II. Credit earned through other AP courses also may be applied to other engineering course requirements as appropriate to content and level, so long as credit for those requirements has not already been earned by other exams or by course enrollment. Questions about AP credits should be directed to the assistant to the dean.

CLEP Credit
Credit earned through the College-Level Examination Program (CLEP) may be applied to meet appropriate requirements in engineering, for example, up to 7 semester hours of credit earned on the social sciences general exam, and/or on the subject exams on separate social sciences topics may be applied to satisfy a portion of the social science requirement. Similarly, up to 7 semester hours of credit in the general and/or subject exams on the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of 10 semester hours can be applied to the total humanities and social science requirements in any engineering major.

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 areas other than those which have resulted in formal course registrations may be granted the opportunity to obtain credit toward graduation by examination. For example, a senior thesis course may be offered by a department of the College of Engineering for students to a final examination in that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to apply for examination should contact the assistant to the dean.

Credit by Validation
Students with course credits obtained at an unrecognized institution may request the validation of this credit up to a maximum of 15 semester hours. The department offering the course 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

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which the work to be validated are prerequisites. Students with unapproved work who wish to utilize this option should contact the dean during the first semester of enrollment in the College of Engineering.

Credit from Other Colleges
Course requirements in engineering may be satisfied by credits earned from courses taken in other colleges of the University or at other accredited colleges or universities. When the student applies for admission to the College of Engineering and after admission has been granted, the credit is evaluated by the assistant to the dean prior to or during the student's first semester of enrollment in the college. Satisfaction of engineering course requirements by transfer course work may be approved by the assistant to the dean if, on a course-by-course basis, there is a match in the content and level of the transfer course, and the grades earned for such courses are C or better. Students who want to satisfy the engineering social sciences and humanities requirements, or The University of Iowa's rhetoric requirements by transfer work should contact the assistant to the dean for details. Students planning to attend a two or four-year institution before transferring to the College of Engineering are well advised to discuss the planned transfer programs with deans at both schools before embarking on a transfer program. The College of Engineering does have recommended course lists for most Iowa community colleges and some four-year colleges. The course lists are available by contacting the College of Engineering and the program in which the student is enrolled in the College of Engineering, all course work taken at other institutions must be evaluated by the assistant to the dean if credit is to be applied to meet the student's degree requirements.

Course Substitutions
For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. The petition form is available in the Office of the Dean. The form must be completed by the student and approved by the student's advisor and the chair of the academic department in which the student is majoring. If the petition requests a required engineering core course, then it must also be approved by the associate dean who administers the college curriculum committee. Substitutions for required engineering core courses are to occur infrequently and only under compelling circumstances. Substitutions of courses that are required by the student's departmental program, or required by the faculty of that department, approval of these course substitutions is to be made only by the faculty advisor and the department chair. All petitions must be forwarded to the office of the dean for inclusion in the student's permanent file.

Auditing Courses
Students in the College of Engineering may register for a course for zero credit (auditing) with the permission of the instructor and the advisor. The mark of R will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory. If unsatisfactory, the mark of W will be assigned. Courses completed with a mark of R do not meet any requirements nor carry any credit toward graduation. Auditing may not be used as a second-grade-only option. To register for a course on an audit basis, the student must enter the course on the registration card in the usual manner (e.g., enter that zero credit hours should be indicated). The instructor's authorizing signature and the registrar's signature are also required on the reverse side of the registration card. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or one and one-half weeks of a summer session.

Student Academic Misconduct
Regulations dealing with cases of cheating or plagiarism are delineated by a college policy. In cases of cheating on exams or quizzes, the policy recommends that the instructor reduce the student's grade, including the assignment of F for the course. When a course grade has been reported as F, the student may not drop the course nor use the second-grade-only option to eliminate the failing grade.

At the beginning of each semester, course instructors individually announce and explain their policies on acceptable levels of student-student collaboration on graded work, which includes homework assignments, and lab or design projects. When a policy is viewed as being non-violated, the actual grade assigned for the total portion of the course grade weighted according to the requirements in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student's file. The student is notified by the office of the dean of any disciplinary action required and informed of appeal procedures if he or she wants to protest the action.

Student Complaints Concerning Faculty Actions
In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty first should attempt to resolve the issue with the faculty member. Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member's department. Students who are unsatisfied with the process with a faculty member or a department chair may seek assistance from the faculty ombudsman when attempting to resolve a complaint. However, grievances generally can be satisfactorily resolved must expediently at the faculty or chair level. If the student is not satisfied with the outcome of this procedure, he or she should discuss the complaint with the dean of engineering.

Student Organizations and Activities
The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college, such as the student and faculty picnics, the homecoming court ceremony, MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers' Week. The organization also acts on college-wide matters of general student interest. Engineering students publish their own student journal, The Iowa Engineer. All positions are filled by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the Institute of Industrial Engineers, the Society of Computer Simulation, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers are active at The University of Iowa.

The UI chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. Ph Lambda Upsilon, honorary chemical and chemical engineering society; Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society; Alpha Eta Mu, honorary industrial engineering society, and Pi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in their respective fields.

Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of minorities and women in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Phi Delta Tau, a national professional engineering fraternity, is available for service in the college and draws its membership from students throughout the college.
Professional Registration

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step is the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given at the University near one time of graduation. Graduates of unaccredited programs must complete at least one year of practical professional experience to be eligible to take the engineering fundamentals exam. Following graduation and the successful completion of the engineering fundamentals exam, the graduate receives a Professional Engineer (P.E.) certificate. The final 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 engineer is a registered "Professional Engineer."}

Graduate Programs

The general rules and regulations for the graduate programs are established by the College of Engineering. However, the specific admission and degree requirements for each graduate engineering program are included in their respective sections. Also included in these sections are information on their financial aid available in each program and the principal areas of study and research.

College Facilities

Engineering Library

The engineering library is a center of college activity. Its collection includes 70,000 books and 900 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 100 library users.

Iowa Computer-Aided Engineering Network (ICAEN)

This facility provides necessary support for instructional computing in the College of Engineering. ICAEN consists of approximately 400 Apollo Computer engineering workstations. Each of these is a powerful computer terminal with a high-resolution video display for graphics applications. The Apollos 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

Facsimile personal computers. The main functions are: stand-alone facsimiles, or tie tied to the Apollo network or Weeg Computing Center facilities. A variety of printers, plotters, and other special devices are available through the ICAEN network.

Software associated with ICAEN includes several programming languages as well as graphics and word processing facilities. Also available are a number of software packages for computer-aided engineering, including two- and three-dimensional drafting and design, surface and solid modeling, finite element modeling and analysis, system simulation, and electronic design.

ICAEN facilities are used by students throughout the undergraduate and graduate engineering programs and in all engineering disciplines. Two large student laboratories provide engineering students with access for ICAEN. The Howard J. Edler 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 identical 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 ICL computer, an IBM computer, a high-speed digitalizing tablet, 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, optimal design, finite element analysis, structural analysis, and dynamic analysis. The computer-aided engineering program offers an undergraduate degree in computer-aided engineering, as well as an option in biomedical engineering, all graduate degree programs. A program in systems engineering is offered jointly with the Department of Mechanical Engineering.

In addition to the departments degree programs, the college offers an undergraduate degree in computer-aided engineering for students who want to tailoringle a special program that may not be available through the traditional majors. Information about both of these degree programs follows in later sections.

Computer Services

In addition to the facilities provided by ICAEN, services of the Weeg Computing Center are available to students and faculty of the college. Access to Weeg facilities is available at student computing laboratories in the college. The Center for Computer-Aided Design has dedicated PRIME 750 and VAX 11/780 minicomputers, two high speed word processors, and extensive graphics equipment for research in computer-aided design. The Computer-Aided Design Laboratory has a PRIME 750 and graphics equipment for instruction. The electrical and computer engineering department has two VAX 11/750 minicomputers and several color graphics work stations for teaching and research. In addition, a number of microcomputers and microcomputer systems are available. All of these resources are for a variety of purposes include teaching, research, and for a variety of student and faculty.

Employment Placement Services

The Engineering Placement Office is a resource center for students and alumni who are seeking professional employment. From its inception the office has assisted students on-campus interview, 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 specifically seeking to hire engineers for full-time and summer positions, current data on job openings 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 degree programs 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 program and all graduate degree programs. A program in biomedical engineering, as well as an option in biomedical engineering, all graduate degree programs. A program in systems engineering is offered jointly with the Department of Mechanical Engineering.

In addition to the departments degree programs, the college offers an undergraduate degree in computer-aided engineering for students who want to tailor one special program that may not be available through the traditional majors. Information about both of these degree programs follows in later sections.

The three resources are the Iowa Institute of Hydraulic Research, the Center for Materials Research, and the Center for Computer-Aided Design. Descriptions of these units follow.

Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IHR) is the College of Engineering, has been widely acknowledged for its years in researching a nation's leading engineers in numerous areas of fluid mechanics and hydraulic engineering.
It was organized formally in 1811 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: aircraft and automobile aerodynamics, civil-fluid mechanics and hydraulics, ship-hydraulics; hydrodynamics; hydrology; water-resource systems; river engineering; sediment-transport mechanics; oceanic engineering; hydraulic structures; biological fluid mechanics; water-quality dynamics; hydraulic-energy dissipation; and pump intake.

High-level involvement of graduate students is a hallmark of most IHR projects. Because it is a unit of the College of Engineering, and because of its heavy involvement in fluids engineering for industry and its branch-based fundamental research programs, IHR provides advanced-degree students and post-doctoral 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 biocatalysts. Speciated projects include traumaic head and spinal injuries, hemodynamics, cardiac mechanics, prosthetic heart valves, bone and ligament biomimetics, replacement, total 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 member of the center also engage in numerous consulting activities for industry, government, and other universities.

Center for Computer-Aided Design
The Center for Computer-Aided Design was founded to enhance research and development of design methods using modern computer technology. The research program of the center is focused on mechanical system dynamic analysis and design, control systems analysis, structural optimization, and dynamic computer graphics. A research facility containing of PRIME 750 and TAUXI-750 supercomputer, CPM 660 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-digit suffix of a course number identifies the level and type of course. Generally the suffix numbers below 100 designate courses primarily for undergraduates; numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates. The table below provides 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
30-99—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
130—Readings courses for non-engineering majors
191-194—Seminars for undergraduates and graduates
195—Contemporary topics courses for undergraduates and graduates
196—Individual investigations for graduates
197—M.S. thesis research
210-290—Upper level graduate courses
291-294—Seminars for graduates
295-297—Contemporary topics courses for graduates
299—Ph.D. thesis research

The course offerings by each department are listed in the department's section by discipline 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 course work at other colleges and universities. The student should consult 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, hold upon a core program described in the earlier section entitled Undergraduate Curriculum. Course descriptions follow for 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. Note that following the courses available to core-engineering majors unless special permission is obtained from the assistant to the dean.

57.000 Pre-Technology Engineering Cooperative (Electives) 4-6 a.b.c.
Students are entitled for this program for fall semester and are assigned to work with a professor teaching a course already comprised by the student support structure to design and guide at research, pure and free labor, hold office hours for students, and develop classroom materials.

57.1 Introduction to Engineering 2 a.b.c.
Survey of the various fields of engineering, explaining approach to problem solving elementary principles. Computer 22BM or 22MC.

57.2 Engineering Graphics 2 a.b.c.
Basic graphics techniques in contemporary engineering including orthographic projection, geometric construction, projection components, orthographic sight, detailed views, analysis of point, line, curves, and solids. Analytical geometry of points, lines, and curves. Engineering applications. Computer 22BM or 22MC.

57.4 Engineering Coop Guidance 2 a.b.c.
Digital computer programming for engineers I. Fortran IV, assembly language, and high-level languages. Input, output device, and analysis techniques with emphasis on applications engineering. Computer 22BM or 22MC.

57.7 Statics 2 a.b.c.
Vector algebra, homogeneous coordinates, Euclidean geometry, forces, pressure, strength of materials, analysis of point and line elements, computer 22BM or 22MC.

57.8 Dynamics 2 a.b.c.
Vector calculus, kinematics, dynamics, linear and angular motion, classical mechanics, analysis of point and line elements, computer 22BM or 22MC.

57.11 Introduction to Electric Circuit Principle 2 a.b.c.
Basic principles of electricity, fundamental laws of electricity and magnetism, circuit analysis, circuit elements, thermal elements, transient response, and circuit steady-state analysis of elements and systems. Computer 22BM or 22MC.

57.13 Linear System Analysis 2 a.b.c.
Operations of linear systems to a system. Matrices, development of general techniques applicable to all types of physical systems. Theory of linear systems. Computer 22BM or 22MC.

57.14 Engineering Economics 2 a.b.c.
Basic concepts of engineering economy, time value of money, interest rates, depreciation, inflation, taxation considerations, Basic methods of present worth, inflation, annuity cash flow, capital recovery, financial accounting, profit and capital budgeting. Computer 22BM or 22MC.

57.15 Materials Science 2 a.b.c.
Basic concepts of materials and structure of metals and ceramics, of engineering applications. Computer 22BM or 22MC.

57.16 Thermodynamics I 2 a.b.c.
First principles of thermodynamics. Thermodynamic properties of gases, faces, and systems, properties of steam, cycle processes, and steady-state analysis. Analytical and engineering applications. Computer 22BM or 22MC.

57.18 Principles of Electronic Instrumentation 4 a.b.

57.19 Electromagnetic Induction 2 a.b.
Simplemagnetostatic fields, steady recurrent systems, electric and magnetic properties of materials, Maxwell's equations. Computer 22BM or 22MC.

57.20 Mechanics of Fluid and Transfer Processes 2-4 a.b.c.
Laminar and turbulent flow and transport processes. Basic concepts of aerodynamics and hydraulics. Analysis, interpretation, and design of hydrodynamic, heat transfer, and fluid flow processes.

57.21 Principles of Design I 2 a.b.
Introduction to design methodology, the analysis, synthesis, and design of systems. Computer 22BM or 22MC.

57.22 Principles of Design II 2 a.b.
Probabilistic and statistical aspects of engineering design. Probability and statistics, random variables, probability density functions, statistical methods of design, statistical methods of design. Computer 22BM or 22MC.

Biomedical Engineering

Ostrob, Kevin R
Professor: Richard A. Brand, Abraham B.
Assistant professor: Debra S. Luke, Y. Wing Liu, John D. Park, Yu Sun, Xue Lin
Associate professor: Thomas D. Brown, Steve Y. Han, David R. London
Degree offered: B.S., M.S.

The last two decades have seen a tremendous growth of technological activity in biomedical engineering. These engineers have been increasingly involved with the tremendous impact that the life sciences and the health sciences have been introduced for them to become more familiar with the biology of medicine and the mechanisms of cells. Recognition of this need has led to the emergence of a new interdisciplinary engineering discipline designed to bridge the gaps between the life sciences and engineering—biomedical engineering.

Students who complete this program may pursue careers in industry (e.g., design and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetics and orthotics devices, man-machine systems), 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 designated 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 based on the foundation provided by the College of Engineering core curriculum, 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
22BM40 Matrix Algebra for Engineers 2 a.b.c.
22BM41 Differential Equations for Engineers 3 a.b.c.
57.50 Dynamics 3 a.b.c.
57.16 Thermodynamics 3 a.b.c.
57.15 Materials Science 3 a.b.c.
72L125 Biomedical Engineering 3 a.b.c.
57.13 Linear System Analysis 3 a.b.c.

Total 15 a.b.c.

Second Semester
38.408 Vector Calculus for Engineers 3 a.b.c.
57.12 Linear System Analysis 3 a.b.c.
57.15 Materials Science 3 a.b.c.
72L125 Biomedical Engineering 3 a.b.c.
57.13 Linear System Analysis 3 a.b.c.
57.12 Linear System Analysis 3 a.b.c.

Total 16 a.b.c.

Junior Year

First Semester
22BM25 Probability and Statistics for Engineers 2 a.b.c.
57.110 Biological Systems Analysis 3 a.b.c.
57.16 Thermodynamics 3 a.b.c.
57.18 Principles of Electronic Instrumentation 3 a.b.c.
57.16 Principles of Electronic Instrumentation 3 a.b.c.
57.16 Principles of Electronic Instrumentation 3 a.b.c.

Total 17 a.b.c.
Graduate Program

The biomedical engineering faculty supervises students interested in pursuing 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 blood mechanics, bioinstrumentation, 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 biodegradable models. Another area of interest is biomedical systems, including systems physiology and the use of computers in health-care delivery.

Courses

5109 Cooperative Education Training

Computational Biomedical Engineering 3 s.h.
Biomedical engineers or medical participating in the Cooperative Education Program need to develop a professional perspective and self-assessment by using the student's interest in the various areas of biomedical engineering. The student's two-year experience in the professional phase of the Cooperative Education Program and approval of faculty advisor.

5142 Biomedical Systems Analysis
3 s.h.
The student must develop a systems perspective of the design of biomedical systems and of the design of systems that function in the body, with emphasis on the selection of tissue and systems physiology and the use of the body.

Special Facilities and Laboratories

Required Course Laboratories

There are two laboratories associated with the required undergraduate courses: Biomedical Instruments and Biomedical Measurements.

- The bioswirl laboratory is equipped for testing experimental properties of biomedical instruments, with sectioning of hard tissues and prostheses in low-temperature histology. This laboratory is also used for 5117B.
- The laboratory is used for 5117B. Biotechnical and Microtechniques.
- The laboratory is also used for 5118B Biomedical Measurements.

Research Facilities and Laboratories

- Biotechnical and Microtechniques.
- This laboratory is equipped for testing mechanical properties of biomedical materials and thin sectioning of hard tissues and prostheses for histology.

- Hemodynamics Laboratory
The Pennsylvania Department of Health Laboratory is equipped to study cardiovascular fluid dynamics, particularly cartilage valve problems and flow in the human aorta.

- Applied Mechanics Laboratory
This laboratory is equipped to study the biomechanics and thin sectioning of hard tissues and prostheses under complex dynamic loading conditions.

Biomedical Image Processing and Computing Laboratory
This laboratory has an AECOM image processing system used to digitize anatomical slides, photography, X-rays, and CAT scan images with a resolution of 640 x 480 pixels and to display 256 colors.

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Chemical and Materials Engineering

Graduate Seminars and Advanced Topics

Chemical and Materials Engineering

Chair: Gregory P. Caruthers

Professor: Keith Biddulph, Gregory P. Caruthers

Professor Emeritus: Karl Kamerzell, James G. Oden, Nathan W. Davis, Arthur F. Voter

Graduate students: David W. Trueblood, David G. Rottenberg

Visiting assistant professor: Randal A. Yoshida

Degree offered: B.S.E., M.S., Ph.D.

Chemical and materials engineering is the art and science of engineering applied to industrial processes in which raw materials are changed or separated into useful products. Chemical and materials engineers develop, design, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by industries such as heavy chemicals, petroleum, specialty chemicals, coal, and solvents as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers. They are engaged in research, process and product development, process and plant design, actual production operation, and sales. Many experienced engineers become managers or administrators.

Courses that have been designed primarily for the chemical and materials engineering program are identified by the digit 2 in the second position of the course number prefix.

Undergraduate Program

The Bachelor of Science in engineering degree prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry, a sequence of mathematics courses, and the common engineering core courses, which together provide a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year

First Semester

2260 30 Linear Algebra for Engineers

2261 32 Vector Calculus for Engineers

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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 include catalysis and reactor design, environmental contamination, particulate material processing sciences, separation science, bioprocessing, and biochemical engineering.

Catalysis and Reactor Design
Within the general field of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of heterogeneous, homogeneous, and multiphase catalysis, gas-solid reactions, modeling and analysis of heterogeneous reactors, and design and novel reactor-separators.

Environmental Contamination
Contamination of the environment in which we live and work is a major problem facing today’s engineers. The Department of Chemical and Materials Engineering has had an active research program in the environmental areas of atmospheric air, pollution, indoor air pollution, and hazardous waste. The faculty is continuing their research activity in air pollution while placing an increased emphasis on air-conditioned contamination of work environments and products with particular application to the microelectronics manufacturing industry.

Particulate Material Processing Sciences
Theoretical and experimental studies in morphological analysis of particulate materials are being conducted. Morphological analysis is concerned with the measurement of particle size, particle shape, texture, chemical properties, and physical properties. These methods are applied to particulate formation processes and studies of particle and bulk behavior. Examples include wear debris analysis, crystallization and precipitation (formation processes), and dust explosions and contamination of particles (particle behavior).

Separation Science and Bioprocessing
Separation processes constitute a major portion of the plant operations leading to the production of finished chemical and biochemical products. Research at The University of Iowa is devoted to the development of new techniques as well as to obtaining a more fundamental understanding of the underlying physicochemical principles involved in existing separation methods. The work is broad, interdisciplinary, and important for the future.

Master of Science
A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in the Summer and Evening Class Program as residence credit may not exceed 8 semester hours. However, 6 semester hours may be completed in residence at another recognized graduate college or through the Guided Correspondence Study Program at The University of Iowa.

The minimum course work requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours may be devoted to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0. Each M.S. degree candidate must defend his or her thesis at the final oral examination. Although it is possible to obtain an M.S. degree in one year, most students spend 1.5 to four semesters to complete the requirements.

Doctor of Philosophy
The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, the candidate normally 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 required to have completed at least 72 semester hours of graduate credit is 3.5. A Ph.D. candidate is expected to maintain a minimum grade-point average of 3.5. All doctoral students are required to pass a written and oral comprehensive examination prior to candidacy for the degree. The Ph.D. candidate must pass an oral comprehensive examination. The examination is also required by the department. The examination must be completed by the student in a timely manner. The rules for the comprehensive examination are established by the department. A final examination, which is a defense of the thesis, completes the doctoral program.

Admission
Full admission to graduate study in this program is granted to students having a B.S. degree in chemical engineering with satisfactory grades from a recognized American college or university. Graduates of foreign universities also are accepted, depending on evaluation of their records. For the M.S. program, a grade-point average of at least 3.5 is required. For the Ph.D. program, a grade-point average of 3.5 is based on 12 or more semester hours of graduate work, or 2.7 based on the entire residence credit. The minimum grade-point average of less than 12 semester hours of graduate work. Conditional admission may be granted to students who have met the above requirements as an assistant and are approved by the department. A grade-point average of at least 3.5 is required or coursework for the admission.

Applicants should have the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) and/or APICATE, 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 difficulties. Graduate courses in these areas are in the nature of make-up courses and do not carry credit toward a graduate degree.
Financial Aid
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction
Engineering Core
Materials Science Laboratory
This laboratory is equipped with optical microscopes and facilities for metallurgical preparation, including a darkfield microscope. Microscopy testing instruments and hardness testing machines also are available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include a metallurgy specimen kit, a 3.0x-15x microscope, and a crystallography test-26-

Required Course Laboratories
Unit Operations Laboratory
This is primarily an instructional laboratory for junior 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 integrated with a microcomputer, wiped film evaporator, shell-and-tube heat exchanger, jacketed kettle, packed columns for gas absorption, plate-and-frame filter press, agitated reactor, and a dryer. Other equipment includes stirred-tank reactors, packed-bed reactor, centrifugal pump, gas chromatograph, reboilthermometer, mixing unit, and a variety of instrumentation for measuring flow, pressure, temperature, weight, etc. A small shop also is available in students for use under a technician's supervision.

Chemical Process Laboratory
This laboratory includes equipment for metering, 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 makes use of routine computer terminals for acquiring control system data.

Graduate Facilities and Laboratories
To support and develop research activities, the department offers a wide variety of facilities, including essential 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 Wink Computing Center, which makes available these computers IBM 3033, Prime 850, Prime 750A, HP 9820A's and a VAX 11/780. They also provide access to the college's Computer-Aided Engineering Laboratory. The department also is connected to the Iowa Computer-Aided Engineering Network, which includes Apollo workstations augmented with Apple Macintosh 512K personal computers. In addition, the laboratory is connected to the University's central research facility in high-performance computing. The laboratory also has a VAX 11/780 and OSI's 647K array processor and provides access to super computers.

Surface Science and Catalysis Facilities
A variety of equipment is available for the study of catalysis. Techniques currently available include chemisorption and photoelectron spectroscopy (XPS), x-ray absorption, x-ray scattering, scanning electron microscopy (SEM), transmission electron microscopy (TEM), a variety of reactor systems including a fluid reactor, a membrane reactor-separator for homogeneous catalysis, a slurry reactor, and catalyst preparation facilities including radio frequency (RF) sputtering and glove box system. Also available are chemical research techniques such as the Iowa Laser Facility, with a variety of laser systems, the Iowa Nuclear Instrumentation, and the High Field Nuclear Magnetic Resonance Facility.

Materials Characterization Facilities
Facilities include a unique 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 Scinti-Pyrometer for measuring powder density, a German Microkeratogrammometer, a Microtextics beddygraph, a TGA-DTA-ZE, and a Coulter Coulter particle counters and sizes, and a Shape Analyzer for particle image analysis for morphological and texture determination.

Other facilities include sample-drying devices, devices for characterizing bulk properties, various mixers, grinders, and string equipment, optical microscopes, staining machines; an attrition tester; measuring and pointing equipment; a lab scale fluidized bed, and an evaporator for the production of particles of specific size and shape. The laboratory also contains a fully controlled 2 liter gas phase reactor for the determination of dust explosibility and a Bruen and Kaiser fast-nester acoustic analyzer. In addition, there is access to the University's Electro Probe Microanalysis and Electron Microscope Facility.

There are also facilities available to study microelectronic materials. These include techniques and clean facilities to characterize crystal growth, wafer preparation, and etching techniques. In addition, the Hybrid Microelectronics Laboratory houses the Oxford Instruments X-ray diffractometer, and the computer engineering department provides capabilities in small-scale microcomputer chip and substrate manufacturing, including the tools and equipment required for wafer fabrication, photolithography, and the fabrication of a wide variety of electronic testing instruments.

Separation Science and Biochemical Facilities
A variety of equipment is available for the study of separation processes. These include an Amicon DC8 ultrafiltration unit, a surface diffusion apparatus, equipment for fermentation of custom membrane units, electrophoretic equipment, and continuous precipitation equipment. The laboratory is supported by several gas chromatographs, a Beckman HP1100, a General Electric 1341 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 Wrightsweight digital balance and gas chromatograph and temperature and pH probe. There also are available, a heat exchanger and a small fermentor, stopped-flow spectrophotometers, and analytical ultracentrifuge, and a pilot 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 fermenters.

Courses

Special Courses
52-080 Cooperative Education Training
6 credit hour courses include the Cooperative Education Externship program for the Cooperative Education degree program, and the Cooperative Education Externship program for the Cooperative Education degree program. Students can earn a maximum of 30 hours of cooperative education credit towards their degree. Students must complete a minimum of 12 credit hours of cooperative education credit to graduate.

52-130 Process Calculations
6 credit hour courses include the Cooperative Education Externship program for the Cooperative Education degree program. Students can earn a maximum of 30 hours of cooperative education credit towards their degree. Students must complete a minimum of 12 credit hours of cooperative education credit to graduate.
328 ENGINEERING/Chemical and Materials Engineering

Mullins and matching systems. Prerequisites: ECE 129 and 324.

32-47 Unit Operations Laboratory I 3 s.h.
Laboratory investigation of transport phenomena and chemical engineering unit operations, design of experiments, sampling and processing, data collection and presentation, safety, and appropriate laboratory safety. Prerequisite: Satisfactory completion of prerequisite course.

32-48 Unit Operations Laboratory II 3 s.h.
Open-ended laboratory training of transport phenomena and chemical engineering unit operations, design of experiments, sampling and analysis, exothermic and endothermic reactions, interpretation of data, and practical problems. Prerequisites: Satisfactory completion of prerequisite course and 32-47.

32-50 Professional Seminar: Chemical Engineering 3 s.h.
Professional enrichment. Readings or selected topics in current areas of chemical engineering. Prerequisites: junior standing.

32-50 Individual Investigation: Chemical Engineering 3 s.h.
Independent study. Extended area in a field of chemical engineering. Undergraduates at all levels, including juniors, seniors, graduate students, and students in professional education. Prerequisites: consent of faculty advisor.

32-53 Engineering Project Management 3 s.h.
Upper-level and graduate courses in project management, entrepreneurship, and innovations. Prerequisite: junior standing in engineering.

32-54 Modern Experimental Design 3 s.h.
Upper-level and graduate course in techniques and methods of statistical experimental design. Prerequisite: ECE 129.

Mass Transfer
32-46 Mass Transfer Operations 3 s.h.
Fundamental principles of binary and polycomponent processes. Distillation, absorption, distillation, adsorption, drying, and sorption. Prerequisites: ECE 190 and 324.

32-131 Equilibrium Stage Processes 3 s.h.
Fundamentals of equilibrium stage processes. Heat and mass transfer, distillation, extraction, adsorption, absorption, and condensation. Prerequisite: Satisfactory completion of prerequisite course.

32-248 Diffusional Mass Transfer 3 s.h.
Diffusion of binary and multicomponent mixed gases. Principles of mass transfer applied to the design of chemical processes and equipment. Prerequisites: Satisfactory completion of prerequisite course.

32-43 Separation Processes 3 s.h.
Thermodynamics and application of real-gas processes for separation and concentration of materials. Prerequisite: Satisfactory completion of prerequisite course.

Reactor Design Analysis
32-45 Chemical Reactor Kinetics 3 s.h.
Applications of chemical reaction rates to design and analysis of reactors. Design of gas-solid, gas-liquid, plug flow reactor, stirred and immobilized enzyme systems, and mixed reactor networks. Temperature and pressure effects on reactor design and modeling. Prerequisites: Satisfactory completion of prerequisite course.

32-41 Fundamentals of Biochemical Engineering 3 s.h.
Introduction to biochemistry, microbiology, and microbiological processes. Topics include microbial growth, metabolic pathways, and biocatalysis. Prerequisites: Satisfactory completion of prerequisite course and junior standing.

32-49 Advanced Chemical Reactor Kinetics 3 s.h.
Advanced topics in chemical reaction kinetics, including numerical techniques, computer simulation, computer models, and modeling techniques. Prerequisite: Satisfactory completion of prerequisite course.

32-44 Fundamentals of Biochemical Engineering 3 s.h.
Introduction to the fundamentals of biochemical engineering. Topics include chemical engineering processes, reaction kinetics, process control, and processes.

32-47 Safety of Microorganisms 3 s.h.
Introduction to the safe handling of microorganisms in a controlled environment. Prerequisites: Satisfactory completion of prerequisite course and junior standing.

32-52 Process Design for Energy and Resource Transfer 3 s.h.
Introduction to design of energy and resource transfer systems. Emphasis on energy and material transfers, and on the use of energy and material transfer systems in the design of process equipment for heat transfer, mass transfer, and chemical reaction systems. Prerequisites: Satisfactory completion of prerequisite course.

32-46 Advanced Biochemical Processes 3 s.h.
Course involves a comprehensive design project, discusses advanced topics such as biochemical reaction kinetics, enzyme structures, chemical engineering principles, and fundamentals of microbiology. Prerequisite: Satisfactory completion of prerequisite course.
Civil and Environmental Engineering

Chair: Jerrel L. Schweizer

Professor: Steven A. Bray, Dina E. Bovarnick, Albert T. Chan, David Forsebeck, Edward J. Hsu, Selmut J. Kaul, Raaj A. Kular, John F. Kennedy, Howard W. McCrady, Donald E. McDonald, Wayne L. Pauley, Jerrel L. Schweizer, Ralph L. Stephens, Francis W. Stinchcomb

Associate professor: Kevin J. Long

Assistant professors: Nigar M. Atiashi, Jeffrey Chafetz, Robert J. Dalrymple, Zane A. DiCaprio, Connie P. Forks, Raymond Gajayoppal, James W. Steiner

Assistant professor: Konstantinos P. Georgakopoulos

Graduate students: Richard J. Vamidere, Robert J. Dalrymple, Zane A. DiCaprio, Connie P. Forks, Raaj A. Kular, Albert T. Chan, Edward J. Hsu, Nigar M. Atiashi, Jeffrey Chafetz, Robert J. Dalrymple, Zane A. DiCaprio

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 space; environment; and hydrological systems that provide clean water and air for injection into the environment. Irrigation systems. Growth areas in civil and environmental engineering include environment; waste management; construction management; computer-aided design; and hazard and 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 the professional civil engineer is capable of, such as planning and design, land surveying, and construction management, is a key attribute of the profession. The need for civil engineers is expected to continue, as the need for water and waste management, and the need for engineers to design and construct facilities to meet these needs, is expected to increase. The civil engineer's role in solving environmental problems is increasingly important, as the need for clean water and air, and the need for facilities that provide essential services, is expected to continue.

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

M2M 42 Vector Calculus for Engineers 3 s.h.
M2C 42 Dynamics 3 s.h.
M2I 51 Introduction to Elementary Science 3 s.h.
M2L 51 Materials Science 3 s.h.
M2T 51 Thermodynamics I 4 s.h.
Total 16 s.h.

Second Semester

M2M 41 Differential Equations for Engineers 3 s.h.
M2H 51 Mechanics of Deformable Bodies 3 s.h.
M2K 52 Mechanics of Fluids and Transfer Processes 4 s.h.
M2P 59 Intermediate Engineering Physics I 3 s.h.
M2S 59a Statistics or social science elective 3 s.h.
Total 16 s.h.

Junior Year

First Semester

289 2 Intermediate Engineering Physics II 3 s.h.
M3 31 Principles of Design I 3 s.h.
M3 35 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
M3 30 Soil Mechanics 3 s.h.
M3 32 Modern Structural Analysis 3 s.h.
M3 51 Professional Seminar: Civil Engineering 0 s.h.
Total 15 s.h.

Second Semester

M3 80 Computer-aided Design I 3 s.h.
M3 82 Principles of Design II 3 s.h.
M3 85 Design of Steel Structures 3 s.h.
M3 85 Principles of Hydraulics 2 s.h.
M3 80 Elements of Surveying 1 s.h.
M3 51 Professional Seminar: Civil Engineering 0 s.h.
M3 59e or social science elective 3 s.h.
Total 17 s.h.

Senior Year

First Semester

M3 36 Reinforced Concrete 3 s.h.
M3 60 Transportation Engineering 3 s.h.
M3 59b Habits 3 s.h.
M3 51 Professional Seminar: Civil Engineering 3 s.h.
M3 59 Principles of Environmental Engineering 3 s.h.
M3 59e or social science elective 3 s.h.
Total 15 s.h.

Second Semester

M3 90 Project Design and Management in Civil and Environmental Engineering 3 s.h.
M3 85 Experiments in Civil and Environmental Engineering 3 s.h.
M3 51 Professional Seminar: Civil Engineering 3 s.h.
M3 59c Technical electives 9 s.h.
M3 59e or social science elective 3 s.h.
Total 17 s.h.

*The humanities and social science electives must be selected to satisfy the humanities and social sciences requirements of the College of Engineering.

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 for advanced research. The principal areas of concentration in environmental engineering and science, including the study of water quality, water and wastewater treatment, and solids and hazardous waste management.

Environmental and Water Resources

The environmental engineering curriculum has two basic stems: one engineering and the other applied science. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Iowa Institute of Hydraulic Research, the Institute of Agricultural Medicine and Occupational Health, and the colleges of Business, Law, and Liberal Arts. Co-op work and research permit a general program of study or specialization in one or more areas of 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 staff members of the institution in the program, they devote about half of their time to teaching. The institute offers unique opportunities for...
among the specialty areas. The candidate normally will need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some speciality areas, a qualifying examination is required during the second semester for students who have not earned an M.S. in an approved curriculum.

All doctoral students are required to pass a written and oral comprehensive examination before formal admission to candidacy for the degree is granted. This examination normally is taken when substantially all of the student's 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 3.0 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences (see the "Division of Mathematical Sciences" in the "Liberal Arts" section of the Catalog).

Admission
Each curriculum of the program is quite flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5; 3.0 is preferred. For admission to candidacy for the doctorate, the minimum grade-point average is 3.2, based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College" section of the Catalog).

Financial Aid
A significant number of research assistantships are available on a variety of research projects, as are limited numbers of teaching assistantships. Selection of recipients usually is based on academic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction
Engineering Core
The freshman engineering course 571, Introduction to Engineering, includes an introduction to the Iowa Computer-Aided Engineering Network (ICAEW), which is described under "College Facilities." Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Apollo work stations. Student teams may use the course Principles of Design to make extensive use of the course hardware and software available through the Computer-Aided Engineering Laboratory, which is described in the earlier section entitled "College Facilities.

For information about laboratories affiliated with core courses coordinated by other departments, see the subsection for each of the other engineering departments.

Required and Elective Course Laboratories
53-39 Soil Mechanics
The soils laboratory is equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

53-85 Experiments in Civil and Environmental Engineering
This laboratory course covers experimental studies in the hydraulics, environmental, and structures area. It is offered at the Hydraulics Laboratory, for Environmental Engineering Laboratory, and the Materials Laboratory as a survey course with hands-on experimentation.

53-158 Principles of Environmental Engineering
The Environmental Engineering Laboratory and University Water Treatment plants 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.

53-159 Limnology
The laboratory for limnology is a part of the Environmental Engineering Laboratory. Typical aquatic organisms are studied in the laboratory and several field exercises are conducted on area streams and lakes.

Graduate Facilities and Laboratories

Environmental Engineering and Science Laboratory
Research in environmental engineering is conducted in the department's Philip F. Morgan Laboratory for Environmental Engineering Laboratory at the Iowa City Municipal Wastewater Treatment Plant, and in the Environmental Engineering Laboratory at the University of Iowa Water Treatment Plant. The Morgan laboratory is devoted to research activities in the wastewater
treatment area. It includes a modern wet chemical laboratory, a 10,000 gallon aeration tank, and space for bench and pilot-studies of wastewater treatment.

The Environmental Engineering Laboratory is equipped for both routine and advanced chemical and biological analyses of water, and provides space for both bench and pilot-scale studies. The store 4 million gallons-per-day water plant is especially designed to measure the isolation of treatment operations for special study without undue interference with the production and supply of treated water to the University.

Hydraulics and Water Resources Labortories

The teaching and research functions of the department are closely connected with the research and consulting activities of the Iowa Institute of Hydraulics Research.

The institute houses some of the most modern research facilities in the world, including a 230-foot towing tank, several hydraulic flumes and wind tunnels, a dispersion furnace, a wave tank, two special low-temperature flow facilities for investigation of ice phenomena, an environmental hydraulic flume for modeling of atmospheric flows, a refrigerated wind tunnel, a computer-controlled data handling system, and 2.5 and 3.0 loop doppler anemometers for micro-scale velocity measurements.

Structures, Mechanics, and Materials Laboratories

These laboratories include a structural testing laboratory, a soils laboratory, a plasticity research laboratory, and a design and model shop.

The structures, soils, and plasticity labs are equipped for the determination of physical and mechanical properties of soils, concretes, soils, plastics, and biomaterials. The laboratory also houses universal testing machines, a creep machine, a prestressing bed and frames, and a computer-controlled MTS axial-torsional test system. The design optimization lab includes two microcomputers and three graphic terminals connected to a PDP-70 computer.

Courses

Special Courses

55000 Cooperative Engineering Training Assignment: Civil Engineering 0.0 h

Civil engineering students participating in the Cooperative Education Program register in this course during work assignments. Students in this course are awarded academic credit for participation in the program. This course is a description of the Cooperative Education Program and is open to students in the Cooperative Education Program. Written permission is required.

55910 Cooperated Independent Study 3.0 h

Review of FORTRAN, INTERACT program development, data collection, analysis, presentation, graphics; discussion of computer graphics; digital computer and algorithms for linear, quadratic, and cubic splines; curve fitting, root finding, optimization, finite element analysis, graphing, hypertext, graphics, and hardware, drawing CAD systems. Prerequisite: 314.

55020 Elementary Surveying 1.5 h

Engineering methods, surveying techniques, instruments, and computations. Prerequisite: 50.1.

55030 Project Design and Management in Civil and Environmental Engineering 3.0 h

Design and civil engineering projects, industrial and minor design projects oriented toward the selection of logical project management, project management: contracts, budgets, and funding. Prerequisites: 55.02 and 261.

55050 Hydrodynamics in Civil and Environmental Engineering 3.0 h

Basic methodology in civil and environmental engineering, with emphasis on hydraulic engineering, reclamation, civil engineering, and environmental engineering. Prerequisites: 55.02 and 261. Corequisite: 50.30 or 50.31.

55100 Professional Seminar: Civil Engineering 2.0 h

Project-oriented projects of civil engineering professional. Written and oral presentations of professional work. Prerequisite: 55.02 or consent of instructor. (May be repeated.)

55110 Individual Investigation: Civil Engineering 4.0 h

Research and development project undertaken by undergraduate civil engineering students, such as laboratory study, engineering design, analysis and synthesis, complete advanced development, and urban research. Prerequisites: consent of instructor.

55130 Hydrogeology and Groundwater Quality

Quantity and quality aspects of groundwater flow, with emphasis on contaminant transport, groundwater modeling, includes lab and field experiences. Prerequisite: senior or graduate standing in engineering or geology. See also 5-12-50.

55131 Numerical Calculations

Design of algorithms for functional approximations, numerical differentiation and integration, solution of algebraic and differential equations with emphasis on capital computer programming. Emphasis on problem formulation. Prerequisites: 55.02 and 55.03.

55190 Engineering Analysis

This course provides mathematical techniques important to the analysis and design of structural, fluid, heat, and mass transfer, fluid transport, fluid mechanics, heat transfer, structural stability, structural dynamics, mechanical vibrations, civil engineering, fluid mechanics, andmathematics. Prerequisites: 55.02 and 55.12.

55212 Mathematical Methods in Engineering I

Linear algebra, linear equations, matrix theory, vector calculus, complex variables, ordinary differential equations, partial differential equations, separation methods, and problem solving techniques. Prerequisites: 55.02 and 55.04. Same as 55.12.

55212 Computer-aided Design II

Computer-aided geometric modeling, curves and surfaces, solid modeling, surface modeling, countless, solid modeling, solid modeling, and computer-aided design. Prerequisites: 55.02 and 55.04. Same as 55.12.

54012 Theories of Functional Policy and Administration

Major concepts relating to the environment and human values and the law of which they are based. Legal basis, legal issues, and regulatory tools used to affect it. Prerequisites: consent of instructor. Emphasis on environmental policy. Prerequisites: 55.02 or 55.04. Same as 55.03.

55012 Analytical Methods in Thermofluid Mechanics

Modeling of engineering problems by mathematical, mechanical, and electrical methods. Application of both fundamental and numerical methods to the solution of problems in fluid mechanics. Prerequisites: 55.02 and 55.03. Same as 55.12.

55012 Analytical Methods in Solid Mechanics

Analysis of static and dynamic problems. Elasticity, plasticity, structures, and materials. Analysis of structures and materials. Prerequisites: 55.02 and 55.03. Same as 55.12.

55080 Environmental Engineering Seminar 2.0 h

Comprehensive seminar in environmental engineering, with emphasis on the integration of the environmental sciences into a broad understanding of the environment. Prerequisite: 55.02 or consent of instructor.

55100 Professional Seminar: Environmental Engineering 2.0 h

Project-oriented projects of civil engineering professional. Written and oral presentations of professional work. Prerequisite: 55.02 or consent of instructor. (May be repeated.)

55110 Individual Investigation: Environmental Engineering 4.0 h

Research and development project undertaken by undergraduate environmental engineering students, such as laboratory study, engineering design, analysis and synthesis, complete advanced development, and urban research. Prerequisites: consent of instructor.

55130 Hydrogeology and Groundwater Quality

Quantity and quality aspects of groundwater flow, with emphasis on contaminant transport, groundwater modeling, includes lab and field experiences. Prerequisite: senior or graduate standing in engineering or geology. See also 5-12-50.

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Design of algorithms for functional approximations, numerical differentiation and integration, solution of algebraic and differential equations with emphasis on capital computer programming. Emphasis on problem formulation. Prerequisites: 55.02 and 55.03.

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This course provides mathematical techniques important to the analysis and design of structural, fluid, heat, and mass transfer, fluid transport, fluid mechanics, heat transfer, structural stability, structural dynamics, mechanical vibrations, civil engineering, fluid mechanics, andmathematics. Prerequisites: 55.02 and 55.12.

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Linear algebra, linear equations, matrix theory, vector calculus, complex variables, ordinary differential equations, partial differential equations, separation methods, and problem solving techniques. Prerequisites: 55.02 and 55.04. Same as 55.12.

55212 Computer-aided Design II

Computer-aided geometric modeling, curves and surfaces, solid modeling, surface modeling, countless, solid modeling, solid modeling, and computer-aided design. Prerequisites: 55.02 and 55.04. Same as 55.12.

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Major concepts relating to the environment and human values and the law of which they are based. Legal basis, legal issues, and regulatory tools used to affect it. Prerequisites: consent of instructor. Emphasis on environmental policy. Prerequisites: 55.02 or 55.04. Same as 55.03.

55012 Analytical Methods in Thermofluid Mechanics

Modeling of engineering problems by mathematical, mechanical, and electrical methods. Application of both fundamental and numerical methods to the solution of problems in fluid mechanics. Prerequisites: 55.02 and 55.03. Same as 55.12.

55012 Analytical Methods in Solid Mechanics

Analysis of static and dynamic problems. Elasticity, plasticity, structures, and materials. Analysis of structures and materials. Prerequisites: 55.02 and 55.03. Same as 55.12.
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 computing, control, communication, electronics, and applied physics.

Curriculum

Sophomore Year
First Semester
5710 Dynamics
3 s.h.
23101 Differential Equations for Engineers
3 s.h.
5711 Thermodynamics I
4 s.h.
5715 Materials Science I
3 s.h.
5711 Introduction to Electrical Science
3 s.h.
Total 16 s.h.
Second Semester
2910 Intermediate Engineering Physics I
3 s.h.
2210 Vector Calculus for Engineers
3 s.h.
5712 Linear Systems Analysis
3 s.h.
5719 Principles of Electronic Instrumentation
4 s.h.
5721 Introduction to Computers in Electrical Engineering
3 s.h.
Total 16 s.h.

Junior Year
First Semester
2920 Intermediate Engineering Physics II
3.25 s.h.
235-295 Probability and Statistics for Engineering and Physical Science
3 s.h.
5521 Introduction to Digital Design
3 s.h.
5540 Electronics Circuits
3 s.h.
5542 Signals and Systems
3 s.h.
5591 Professional Seminar: Electrical Engineering
0 s.h.
Total 15 s.h.
Second Semester
5533 Introduction to Software Design
3 s.h.
5550 Communication Systems
3 s.h.
5560 Control Theory
3 s.h.
5570 Electromagnetic Theory
3 s.h.
5584 Principles of Electrical Engineering Design I
3 s.h.
Humanities or Social science elective
3 s.h.
Total 18 s.h.

Senior Year
First Semester
55.82 Electrical Engineering Materials and Devices 3 s.h.
55.85 Principles of Electrical Engineering Design II 2 s.h.
**55.21 Professional Seminar: Electrical Engineering 2 s.h.
**Technical electives 6 s.h.
*Humanities or social science electives 6 s.h.
Total 15 s.h.

Second Semester
55.86 Principles of Electrical Engineering Design III 3 s.h.
2300 Modern Physics 3 s.h.
**Technical Electives 6 s.h.
*Humanities or social science electives 4 s.h.
Total 15 s.h.

*Professional Seminar must be taken once in the junior year and once in the senior year.
**Technical electives must include at least two of the following:
55.68 Power Systems Analysis 3 s.h.
55.130 Switching Theory 3 s.h.
55.137 Microcomputer-Based Systems 3 s.h.
55.238 Fault Tolerant Computing 3 s.h.
55.140 Elements of Thin-film 3 s.h.
Thin-Film Microelectronics 3 s.h.
55.143 Power 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.
55.150 Control Theory 3 s.h.
55.156 Computer Based Control Systems 3 s.h.
55.155 Introduction to Robotics 3 s.h.
55.172 Solid State Physics 3 s.h.
55.173 Electronic Physics 3 s.h.
55.175 Ultrasonic Signal Processing 3 s.h.
55.179 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 nontesis 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 bounded only by a few basic guidelines imposed by the Graduate College and by the program. Close interdisciplinary links 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 program areas of concentration are waves and materials, computer systems, signal and image processing, and statistical and computer-based control systems, each of which is briefly described here.

Waves and Materials
Plasma physics, electron-optics, and acousto-optics investigate theoretical and applied laboratories in both the Engineering Building and Van Allen Hall. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics, a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as aurorae and shocks. A plasma physics laboratory is available to support this activity. An electron-optic laser laboratory and an acoustic-ultrasonic laboratory are used to conduct graduate research in the areas of acoustic-optics, 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 acoustic-optics, ultrasonic solitons, 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 computer architecture, computer systems, distributed systems, coding, VLSI design, and non-standard computer architectures. The VLSI laboratory is located in multidisciplinary facilities, and design of easily testable, very large scale integrated circuits. Close contact with the Department of Computer Science are maintained.

Signal and Image-Processing
Cardiovascular signal and image processing, signal processing associated with speech, hearing, and vision, estimation theory, and adaptive signal processing currently constitute a major area. Collaborative efforts involve the departments of biomedical engineering, physics, and the College of Medicine. A digital signal processing laboratory and a cardiovascular laboratory in the University Hospital, are available to support this research. Recent problems include image processing, detection of cardiac motion, recognition, and spectral analysis of speech.

Doctor of Philosophy
Requirements are:
Selection of a program adviser and filing of a tentative plan of study with the program during the first year.
At least 72 semester hours of credit in a coherent program acceptable to the adviser and approved by an 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 experiences with engineering laboratory instrumentation. The electronics laboratory facilities are equipped with oscilloscopes, signal generators, analog and digital broadcasting equipment, and a variety of measuring instruments.

Required and Elective Course Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories plus special laboratories for microcomputers, minicomputers, 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 disk storage.
Five Apollo workstations-two of which are color, a PDP 11/65, a VAX 2510 systems, and several Macintosh personal computers.
Over thirty dipharmacors and graphical terminals (including high resolution smart color terminals) are available for accessing departmental, college and University computers. Several laser printers and two electronic plotters are available for production of high quality hand copies.

Courses

Special Courses

55:009 Cooperative Education Training Assignment: Electrical Engineering

Electrical engineering systems currently in the Cooperative Education Program register in this course during fall semester assignments. Cooperative Education Program students are required to sign a cooperative education contract with the Department of Electrical Engineering.

55:046 Principles of Electrical Engineering I

Design principles of electrical engineering with emphasis on practical aspects and student-designed circuits, advanced applications, and applications of systems analysis methods.

55:047 Principles of Electrical Engineering II


55:048 Principles of Electrical Engineering Design I

 família

55:049 Principles of Electrical Engineering Design II

family

Financial Aid

A number of fellowships, traineeships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Digital Systems and Computers

55:201 Introduction to Computers in Electrical Engineering

Introduction to the digital domain: fundamentals of binary number systems, computer logic, counters and sequence of events, boolean algebra, and computer logic design. Emphasis is on digital design and applications. Prerequisites: 55:135 and 55:141.

55:202 Introduction to Digital Design

Modern design and analysis of digital switching circuits, combinational logic, sequential circuits, and system design. Prerequisites: 55:201 and 55:135.

55:203 Introduction to Software Design

Introduction to computer programming languages, algorithms, and data structures: introduction to data structures and their use in programming applications. Prerequisites: 55:135 and 55:141.

55:116 Switching Theory

Introduction to logic network categories: logic families, boolean and state look-up tests and design. Design techniques for three-level combinational logic. Sequential network design. Prerequisite: 55:046.

55:121 Introduction to Microsystems

Introduction to microelectronics and the microcomputer. Design techniques for microminiaturized digital logic programming. Communication applications with emphasis on laboratory experiment. Lab required. May be included in major or minor in electrical and computer engineering. Prerequisites: 55:141.

55:122 Computer Organizations

The computer processor and input/output devices, including instruction sets, machine architecture and the instruction set. Programming, including assembly language and register-transfer architecture. Prerequisites: 55:141 and 55:142.

55:124 Computer Organization

Computer systems, including microcomputer and microprocessor architecture, central processing units, microprocessors, memory, input-output devices, and assembly language programming. Emphasis on local network protocols, transmission and multiplexing. Prerequisites: 55:135 and 55:141.

55:125 Microcomputer-Based Systems


55:138 Fault Tolerant Computing


55:320 Advanced Switching Theory

Advanced switching theory. Modern design and analysis of digital switching circuits, combinational logic, sequential circuits, and system design. Prerequisite: 55:135 and 55:141.

55:321 Logic Design


55:322 Advanced Signal Processing

Advanced signal processing techniques. Modern design and analysis of digital switching circuits, combinational logic, sequential circuits, and system design. Prerequisites: 55:135 and 55:141.
5.5.22 Advanced Computer Organization 3.b.
Current research work is in computer architecture and organization. The design of new data flow, RISC, and parallel architectures; high-performance computers; parallel processors; VLSI microprocessors, and advanced hardware for non-Vimid Reconfigurable computing. Principles of 5.5.12, 5.5.23, 5.5.24.

5.5.22b Distributed Computing 3.b.
Use of distributed computing systems, hardware topologies, embedded systems, networking, computer languages, and advanced hardware. Principles of 5.5.12, 5.5.23, 5.5.24.

5.5.24 Signal Processing

5.5.48 Electronic Circuits

5.5.48a Linear Circuits

5.5.48b Digital Circuits

5.5.49 Signals and Systems

5.5.49a Signals

5.5.49b Systems

5.5.50 Control Systems

5.5.51 Communication Systems

5.5.52 Control Theory

5.5.53 Feedback Control Systems

5.5.54 Automation

5.5.55 Control Engineering

5.5.56 Digital Signal Processing

5.5.57 Image Processing

5.5.58 Wavelets in Engineering

5.5.59 Communication Systems

5.5.60 Digital Signal Processing

5.5.61 Image Processing

5.5.62 Wavelets in Engineering

5.5.63 Modern Control Theory

5.5.64 Control Systems

5.5.65 Digital Signal Processing

5.5.66 Image Processing

5.5.67 Wavelets in Engineering

5.5.68 Modern Control Theory

5.5.69 Control Systems

5.5.70 Digital Signal Processing

5.5.71 Image Processing

5.5.72 Wavelets in Engineering

5.5.73 Modern Control Theory

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5.5.133 Modern Control Theory

5.5.134 Control Systems

5.5.135 Digital Signal Processing

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5.5.137 Wavelets in Engineering

5.5.138 Modern Control Theory

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5.5.193 Modern Control Theory

5.5.194 Control Systems

5.5.195 Digital Signal Processing

5.5.196 Image Processing

5.5.197 Wavelets in Engineering

5.5.198 Modern Control Theory

5.5.199 Control Systems

5.5.200 Digital Signal Processing

5.5.201 Image Processing

5.5.202 Wavelets in Engineering

5.5.203 Modern Control Theory

5.5.204 Control Systems

5.5.205 Digital Signal Processing

5.5.206 Image Processing
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, public safety, economic development groups, land developers, public works departments, or corporate long-range planning departments. More information can be obtained from the "Urban and Regional Planning" in the "Faculty and Staff" section of the Catalog, also 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 work of 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

22M:41 Differential Equations for Engineers

3 s.h.

37:16 Thermodynamics I

4 s.h.

37:11 Introduction to Electrical Science

3 s.h.

37:15 Materials Science

3 s.h.

37:10 Dynamics

3 s.h.

Total

16 s.h.

Second Semester

22M:42 Vector Calculus for Engineers

3 s.h.

37:12 Linear Systems Analysis

3 s.h.

57:10 Mechanics of Deformable Bodies

3 s.h.

37:18 Principles of Electronic Instrumentation

4 s.h.

37:16 Intermediate Engineering Physics I

3 s.h.

Total

16 s.h.

Junior Year

First Semester

225:39 Probability and Statistics for Engineering and Physical Sciences

3 s.h.

29:42 Intermediate Engineering Physics II

4 s.h.

57:20 Mechanics of Fluids and Transfer Processes

4 s.h.

57:21 Principles of Design I

3 s.h.

*Humanities or social science elective

3 s.h.

Total

16 s.h.

Second Semester

29:43 Modern Physics

3 s.h.

57:22 Principles of Design II

3 s.h.

57:14 Engineering Economy

3 s.h.

Technical elective

3 s.h.

*Humanities or social science elective

4 s.h.

Total

16 s.h.

Senior Year

First Semester

Design course

3 s.h.

*Technical electives

3 s.h.

*Humanities or social science elective

3 s.h.

Total

18 s.h.

Second Semester

Design course

3 s.h.

Technical electives

3 s.h.

*Humanities or social science elective

3 s.h.

Total

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.
Undergraduate Program

The curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, management, operations research, production, and humanities. Advanced courses include subjects such as computer operations research, management, manufacturing, and engineering management.

Curriculum

Sophomore Year

First Semester

57:10 Dynamics 3 s.h.
57:11 Introduction to Electrical Science 3 s.h.
57:14 Engineering Economy 3 s.h.
57:15 Materials Science 3 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
Total 15 s.h.

Second Semester

57:12 Linear Systems Analysis 4 s.h.
57:16 Thermodynamics I 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.
57:13 General Psychology 3 s.h.
57:85 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year

First Semester

59:10 Professional Seminar: Industrial Engineering 3 s.h.
59:31 Manufacturing Processes 3 s.h.
57:21 Principles of Design I 3 s.h.
225:39 Probability and Statistics for Engineering and Syntactical Sciences 3 s.h.
225:02 Intermediate Engineering Physics II 3 s.h.
56:402 Human Factors Engineering: Economics elective 3 s.h.
Total 18 s.h.

Second Semester

59:30 Professional Seminar: Industrial Engineering 3 s.h.
56:131 Manufacturing Systems 3 s.h.
56:140 Design of Work Methods 3 s.h.
56:166 Production Systems 3 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.
57:22 Principles of Design II 3 s.h.
Total 16 s.h.

Senior Year

First Semester

59:11 Professional Seminar: Industrial Engineering 3 s.h.
56:150 Information Systems Design 3 s.h.
52:156 Psychology in Management 3 s.h.
57:160 Operations Research Design 3 s.h.
56:162 Quality Control and Engineering 3 s.h.
56:173 Statistical Operations Research 3 s.h.
57:1 Technical electives 6 s.h.
Total 16 s.h.

Graduate Programs

Graduate 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 academic practice. The curriculum is highly flexible, the goal is academic excellence.

There are five principal areas of academic focus in the graduate program of industrial and management engineering: manufacturing, computer operations research, production, and management.

Curriculum

First Semester

56:14 Advanced Management Psychology 3 s.h.
56:151 Microcomputer Applications 3 s.h.
56:150 Engineering Administration I 3 s.h.
56:150 Quantitative Investment Analysis 3 s.h.
56:15 Economic Decision Making 3 s.h.
56:167 Reliability Theory and Practice 3 s.h.
56:170 Deterministic Operations Research 3 s.h.
56:178 Decision Analysis 3 s.h.
56:178 Digital System Simulation I 3 s.h.
56:199 Industrial Engineering: Industrial Engineering 3 s.h.
Total 15 s.h.

Graduate student in Industrial and Management Engineering 3 s.h.
include mathematical programming, statistical optimization, stochastic analysis, and digital systems simulation. Courses in the 76 series cover these topics.

Many graduate students tend to focus on one of these specialty areas, while others distribute their studies over two or even all five areas.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research consists of feasible manufacturing systems, design, optimum control of processing paths, adaptive manufacturing control, parametric robotic control, and automatic pattern recognition of parts. Current research in human factors engineering/geoscience consists of investigating the effects of visual and auditory information on human information processing, performance/life 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 problem solving, and techniques of ergonomic data collection and analysis.

Some current research in information and engineering management consists of investigating the effects of visual and auditory information on human decision making, ergonomics, risk assessment for medical resource allocation, economics of parallel processing, entrepreneurship, government decision making, and causal analysis, methods of identifying accident causes, through incidence data, strategic management, and economic risk analysis. Quality and production control research is currently focused on: computer-aided layout and scheduling, materials handling systems, location and allocation of automatic inspection, on-line expert systems, and work flow analysis.

During the summer, new students are taught an introductory record accuracy-assurance procedures.

Ongoing research is operations research and optimal control, data base system design and 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 improving the capabilities of computer graphics.

Master of Science

Two M.S. programs are available; a thesis and a nonthesis program. Students considering admission to a Ph.D. program should select the thesis option. The M.S. thesis option requires a minimum of 36 semester hours of course work in 100- and 200-level courses, including at least 6 semester hours of research. Students who elect the nonthesis option must complete a minimum of 39 semester hours of course work at the 100 and 200 level, including at least 6 semester hours at the 200 level or at the 100 level with the designation "advanced" or "contemporary topics" in the course title. A tentative plan of study for each student is determined through consultation with his or her advisor.

Entering students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find psychology and engineering economics to be useful preparation. Computer science courses may be required for students with nonengineering backgrounds.

The program requires a minimum grade-point average of 3.0 on all graduate courses (both 100- and 200-level courses) at the University of Iowa in order to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. The examination may consist of both written and oral parts. The examination will explore the student's course preparation and 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. Additional study requirements above this lower limit are specified by the student's advisory committee. Part-time Ph.D. study is discouraged. There is no foreign language requirement or special requirement for research techniques. Admission to the degree candidacy requires a minimum grade-point average of 3.25 on all graduate work taken at the University of Iowa and the demonstration of a capacity for individual achievement. (Upon completing the comprehensive examination, a Ph.D. student will be evaluated by his or her advisor and advisory committee.) The student is not allowed to register for the comprehensive examination, which includes both written and oral parts. Part-time candidates 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 satisfactorily completing the examination, the student is accorded candidacy for the Ph.D. and normally has only to complete and defend the dissertation.

Admission

Students with an M.S. objective may be admitted from an ABEI accredited baccalaureate curriculum in any engineering discipline or in the mathematical or physical sciences with a minimum grade-point average of 2.75 and an acceptable score on the Graduate Record Examination (GRE) Advanced Test (typically, at least 600 verbal, 550 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may also be admitted to 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 attempts 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 ABEI 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 550 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 admissions to the Ph.D. program are approved by the faculty as a committee of the whole.

Financial Aid

A number of one-quarter-time and one-half-time grants are available to students continuing in engineering research assistantships are available. Awards are based on the student's academic record and an assessment of the student's qualifications and potential to the research and teaching goals of the department. Students also may qualify for higher stipend instructor positions. Students should write to the chair of the industrial and management engineering department for further information.

Special Facilities and Laboratories

Engineering Core

For information about laboratories affiliated with core courses coordinated by class, see this sub-section for each of the other engineering departments.

Required and Elective Course

Industrial and management engineering occupies the north wing of the fourth floor
Courses

Special Courses

5800 Cooperative Extension Training Assignment: Industrial Engineering 6 s.h.

Industrial engineering students participate in the Cooperative Extension Program during fall break. This permit students to gain industrial experience by working in a factory setting. Prerequisites: Industrial Engineering 1101.

5801 Professional Emphasis: Industrial Engineering 0.5 s.h.

Practices involved in industrial engineering analysis. Through lectures and discussion for guest speakers, lab tests, tours, and problem solving, the student will learn about the design, development, and evaluation of industrial engineering applications. Prerequisites: Industrial Engineering 1101.

5809 Individual Investigation: Industrial Engineering 1 s.h.

Individual projects in industrial engineering for unusual and specialized situations. This project involves the planning, design, and evaluation of an industrial application and is concerned with software development, and research. Prerequisite: consent of course advisor.

Manufacturing

5625 Manufacturing Processes 3 s.h.

Examination of processing typical industrial materials, including casting, heat treating, welding, machining, forging, and hot and cold forming. Consideration of metal removal processes, production design, and measurement. Laboratory exercises and projects. Offered Industrial Engineering 1131.

5631 Manufacturing Systems 3 s.h.

An overview of manufacturing as an industry consisting of computer and semiconductor control, technical and management systems. The use of modern techniques in the solution and implementation of various design and manufacturing problems. Instrumentation and control systems involved in the production of goods. Prerequisites: Computer and Information Science 1101.

5632 Introduction to Industrial Robotics 3 s.h.

Operation and control of robots. Design and use of robots to handle specific tasks. Design and development of automated systems, both present and expected topics and control. Offered as Computer Science 5632 or consent of instructor.

Human Factors/Ergonomics

5648 Design of Work Methods 3 s.h.

Human factors analysis and design applied to industrial and manufacturing systems. Laboratory projects. Offered as Industrial Engineering 5648 or Computer Science 5648.

5649 Human Factors Engineering 3 s.h.

Design of human machine systems to facilitate effective use of computer equipment and common workstation. Laboratory projects. Offered as Industrial Engineering 5649 or Computer Science 5649.

5650 Advanced Human Factors Engineering 3 s.h.

Human factors analysis of industrial equipment and systems. Laboratory projects. Offered as Industrial Engineering 5650 or Computer Science 5650.

5650 Psychology in Management 3 s.h.

Application of psychology and social science to decision making, leadership, motivation, organizational design, and the social psychology of work in industrial organizations. Other topics. Offered as Industrial Engineering 5650.

Information and Engineering Management

5650 Information System Design 3 s.h.

Design of hardware and software systems, including decision support systems, systems design, decision analysis, computer hardware, software, and systems interaction. Offered as Industrial Engineering 5650 or Management Information Systems 5650.

5652 Microcomputer Applications 3 s.h.

Design of computer systems for industrial applications. Analyzes computer hardware, software and their design. Computer architectures, design and implementation of microcomputer applications. Offered as Industrial Engineering 5652 or Management Information Systems 5652.

5653 Engineering Administration I 3 s.h.

Principles of engineering evaluation, cost and quality control, project management, and other applications in the engineering profession. Offered as Industrial Engineering 5653 or Management Information Systems 5653.

Quality and Production Control

5690 Operational Research Design 3 s.h.

Projects involving the design and implementation of operational research in industrial or service organizations. Prerequisites: Management Information Systems 5650 or灰 mattering instruction. Prerequisites: Management Information Systems 5650 or灰 mattering instruction. Prerequisites: Management Information Systems 5650 or Management Information Systems 5650.

5692 Quality Control and Engineering 3 s.h.

Basic techniques of industrial quality control for process control and acceptance sampling. Applications include inspection, testing, and sampling. Offered as Industrial Engineering 5692 or Management Information Systems 5692.

5694 Reliability Theory and Practice 3 s.h.

Introduction to the statistical and probabilistic techniques used in computer code and reliability evaluation. Topics include computer failure analysis, failure prediction, and reliability. Offered as Industrial Engineering 5694 or Management Information Systems 5694.

5800 Advanced Managerial Psychology 3 s.h.

Human factors in organization psychology. Offered as Psychology 5800 or Industrial Engineering 5800.

5804 Symbolic Analysis Analysis 3 s.h.

Analysis of symbolic processes, including digital systems, computer design, and computerized systems. Offered as Computer and Information Science 5804 or Computer Engineering 5804.

5805 Symbolic Systems Analysis 3 s.h.

Analysis of symbolic systems, including computer organization, computer operation, and computerized systems. Offered as Computer and Information Science 5805 or Computer Engineering 5805.

5811 Symbolic Systems Analysis 3 s.h.

Analysis of symbolic systems, including computer organization, computer operation, and computerized systems. Offered as Computer and Information Science 5811 or Computer Engineering 5811.
Fluid Mechanics
The graduate program in fluid mechanics is especially suitable for undergraduate careers in teaching and/or research in academic and industrial organizations. Emphasis is on the elucidation of fundamental principles and techniques of solving problems in the various fields of fluid dynamics applications. In addition to physical modeling, strong emphasis is given to the use of digital computers, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data.

Thermal Science and Systems
The graduate program in thermal science and systems is designed to prepare students for careers in industry, teaching, or government. Emphasis is on the fundamentals of thermodynamics and heat transfer and associated analytical and experimental methods used in energy conversion systems. Areas of concentration include heat and mass 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 (tensile, fatigue, fracture mechanics, etc.).

Biomechanics and Biomaterials
The graduate program in biomechanics is designed to provide students 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 and experimental techniques used in analyzing and designing biomedical systems. Areas of concentration include tissue biomechanics of the central nervous system, the biomechanics of the spine, biomechanics of the lower and upper extremities, cardiovascular biomechanics, biomedical systems analysis, optimization as applied to biomechanics, biomedical image analysis, and health care delivery.

Master of Science
The M.S. program requires a minimum of 39 semester hours of course work and research. Students may choose either a thesis or an internship program. A thesis program may include 5 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 in residence are required to attend 351.101, 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 their committee. The requirement for the M.S. degree may be completed within a calendar year for a full-time student. However, students with assistantship duties or other constraints may require between one and two calendar years to complete the degree.

Doctor of Philosophy
Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit—including research for the dissertation—beyond the baccalaureate degree. All graduate students are required to attend 351.09 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 program are required to take the qualifying examination during their first year in the program. Completing the required course work in the plan of study and upon the advisor’s recommendation, the student is admitted to the comprehensive examination given by the student’s committee. The comprehensive examination must be completed within 28 months from the date of starting course work for the Ph.D. degree. During this window, the comprehensive examination is examined over all elementary, intermediate, and advanced courses relevant to his or her degree program. The oral examination examines the student’s preparation for the proposed dissertation research project in addition to the student’s course work. The oral examination generally is taken within one month after the written examination. Having 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 a master’s degree, depending on 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 2.5 are eligible to apply for admission. The Graduate Record Examination (GRE) is required of all applicants. Applicants from non-native English-speaking countries may be required to submit scores from the TOEFL or IELTS examination. All application materials must be submitted by the deadline dates.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The curriculum for the baccalaureate degree program in mechanical engineering consists of a combination of fundamental courses, technical courses, and elective courses. The curriculum is designed to provide a solid foundation in the principles of mechanics, thermodynamics, and materials science.

Required and Elective Course Laboratories

The mechanical engineering department offers a wide variety of laboratories for students to conduct their research. These laboratories provide students with the opportunity to perform experiments and develop their skills in a controlled environment.

Graduate Facilities and Laboratories

The fluid mechanics laboratory is equipped with state-of-the-art equipment for studying the behavior of fluids in various conditions. This laboratory is used for research in areas such as heat transfer, fluid dynamics, and computational fluid dynamics.

General Courses

51107 Mechanical Drawing

51108 Cooperative Design II

51110 Mechanical Engineering Systems Laboratory

51120 Computer-Aided Design

51125 Mechanical Engineering Systems Laboratory

51130 Fluid Mechanics and Heat Transfer
58:352 Advanced Mechanical Design 3 s.h.
Advanced topics in mechanical systems design and analysis design optimization. Prerequisites: 58:351.

58:353 Computational Methods in Dynamics 3 s.h.
Computational methods for simulation and preparation of solutions of equations of motion of large-scale mechanical systems. Prerequisites: 58:352 and 58:351.

58.354 Energy Principles in Structured Mechanism 2 s.h.

58:355 Solid Mechanics II 2 s.h.
Plane theory of elasticity, stress and strain, stress and strain, crack-tip-plastic zone, simple mechanical units of design behavior. Prerequisites: 58:354 or equivalent. Same as 58:355.

58:357 Theory of Viscoplasticity 2 s.h.
Linear theory of incompressible, viscoplastic materials. Balanced viscoplasticity and viscoplasticity. Applications to materials science. Prerequisites: 58:356. Same as 58:356.

58:358 Continuum Mechanics and Fluidity 3 s.h.
Same as 58:359.

Biomechanics and Biomaterials

58:370 Composite Materials 3 s.h.
Same as 58:178.

58:371 Advanced Biomechanics 3 s.h.
Same as 58:179.

Graduate Seminars, Advanced Topics, and Research

58:390 Readings in Mechanical Engineering 3 s.h.
For graduate students with overengineering majors who need help in selecting a mechanical engineering program. May be repeated. Prerequisite: graduate classification.

58:395 Graduate Seminar: Mechanical Engineering 9 s.h.
Preparation and discussion of recent advances and research in mechanical engineering by guest speakers, faculty, and students. Prerequisites: senior or graduate standing.

58:395 Contemporary Topics in Mechanical Engineering 9 s.h.
New topics in fluid and thermal sciences and current problems of general interest. Topics and requirements announced. Prerequisite: junior standing.

58:397 Individual Investigation: Mechanical Engineering 3 s.h.
Individual investigation of an approved topic by part-time graduate students. Prerequisites: written or oral examination; approval by advisor.

58:399 Research: Mechanical Engineering 3 s.h.
Experimental and/or statistical investigations of an approved topic by part-time graduate students. Prerequisite: graduate standing and consent of advisor.

58:490 Research: Mechanical Engineering 4 s.h.
Experimental and/or statistical investigations of an approved topic by part-time graduate students. Prerequisite: graduate standing and consent of advisor.
Graduate College

Graduate teaching assistant
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fifth of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University’s graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises all University faculty members in the ranks of assistant professor, associate professor, and professor. A U-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degree Programs
The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Arts in Teaching (M.A.T.), Master of Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Master of Comparative Law (M.C.L.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields:

- Accounting—M.A.*
- African-American World Studies—M.A.*
- American Studies—M.A.*, Ph.D.
- 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.*, Ph.D.
Classics—M.A.*, Ph.D.
Communication Studies—M.A.*, Ph.D.
Community Dentistry and Dental Public Health—M.S.
Comparative Law—M.C.L.*
Comparative Literature—M.A.*, Ph.D.
Computer Science—M.S.*, Ph.D.
Criminal Justice and Corrections—M.A.*
Dental Hygiene—M.S.
Economics—M.A.*, Ph.D.
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.
Environmental Health 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.
Neuroscience—Ph.D.
Nursing—M.A.
Nutrition—Ph.D.
Operative Dentistry—M.S.
Oral Pathology—M.S.
Oral and Maxillofacial Surgery—M.S.
Orthodontics—M.S.
Otolaryngology—Head and Neck Surgery—M.S.
Pathology—M.S.
Pediatric Dentistry—M.S.
Periodontology—M.S.
Pharmacology—M.S., Ph.D.
Pharmacy—M.S.*, Ph.D.
Philosophy—M.A.*, Ph.D.
Physical Education—M.A.*, Ph.D.
Physical Therapy—M.A.
Physics—M.S.*, Ph.D.
Physiology and Biophysics—M.S., Ph.D.
Political Science—M.A.*, Ph.D.
Preventive Medicine and Environmental Health—M.S.*, Ph.D.
Psychology—M.A.*, Ph.D.
Public Affairs—M.A.*
Radiation Biology—M.S., Ph.D.
Renewable Education—M.A.*
Religion—M.A.*, Ph.D.
Removable Prosthodontics—M.S.
Graduate College

Russian—M.A.*
Science Education—M.S.*; Ph.D.
Social Studies—M.A.*
Social Work—M.S.W.*
Sociology—M.A.; Ph.D.
Spanish—M.A.; Ph.D.
Speech Pathology and Audiology—M.A.; Ph.D.
Statistics—M.S.; Ph.D.
Theatre Arts—M.A.; M.F.A.; Ph.D.
Urban and Regional Planning—M.A., M.S.*

*Degree offered with or without thesis
**Nonthesis degree
***Student entry suspended

Ad Hoc Interdisciplinary Ph.D. Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of ad hoc interdisciplinary Ph.D. degrees. There are no provisions for ad hoc interdisciplinary programs at the master's level. Students seeking approval for ad hoc interdisciplinary Ph.D. programs must present a proposal to the Graduate College. All programs are subject to approval by the dean of the College of Arts and Sciences and the Academic Council.

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Aging Studies Program

The Aging Studies program is a multidisciplinary postgraduate program administered by the College of Liberal Arts in cooperation with other colleges of the University of Iowa. The program is designed to complement graduate degree programs for students with academic, professional, research, or service center interests in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in Aging Studies. For further details, see "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

Applied Mathematical Sciences

The program in Applied Mathematical Sciences is a broad-based interdisciplinary program leading to the Ph.D. degree. Students combine study of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) with study in a science (behavioral, biological, engineering, medical, physical, or social). See "Applied Mathematical Sciences" under "Division of Mathematical Sciences" in the "College of Liberal Arts" section of the Catalog for a list of faculty and a more detailed description of the program.

Center for International and Comparative Studies

The Center for International and Comparative Studies coordinates and supports interdisciplinary international studies at The University of Iowa. Founded as a faculty committee in mid-1961, CICS was recognized by the Board of Regents of Iowa in April 1964 as an academic center. In 1965, CICS was granted 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 two state, the region, and the nation by making available the human and bibliographic resources of the University through public lectures, informational programs, and research activities.

The center is managed by a half-time director and an executive committee in faculty representing seven interdisciplinary programs: Asian Civilizations, African Studies, Global Studies, International Development, Latin American Studies, Women in Development, and the Project for International Communication Studies. Faculty members and students in these programs are drawn from schools and departments across the University. CICS works closely with the Office of International Education and Services, and both organizations are linked administratively to the university's president for educational development and research.

Four of the seven programs in CICS combine research with educational programs for undergraduates and graduate students. African Studies, Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate section under "College of Liberal Arts" in the Catalog). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee and the Project for International Communication Studies promote research, teaching, and instructional activities. The Center supports interdisciplinary studies, funding more than 60 public lectures and seminars yearly; by providing administrative facilities to faculty; 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 Relations 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. Six times a year CICS publishes the International Studies Newsletter, which announces forthcoming events. CICS publishes scholarly papers in several occasional series.

Evolutionary Ecology and Behavior

Program co-chairs: Stephen Hauser, Henry Rose

Robert W. Crabtree (Biology), Joseph P. Gaffney (Biology), George W. Gilpin (Biology), Marc Hoffmann (Biology), Gilbert A. Jones (Biological Sciences), William Johnson (Biology), David Winer (Chemistry), John D. Woehl (Biology), John M. Zanger (Biological Sciences)

Dean Bates (Biology), George Malinson (Geography), Sue E. Lee (Biology)

Program and Facilities

The departments of Biology and Botany offer programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and behavior, emphasizing adaptation, community ecology, and the genetic basis of adaptation. Particular strengths of the program are behavioral and quantitative genetics, population genetics, population biology, and behavioral biology. There is real and strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, genetic correlations, and the genetic basis of adaptation are investigated. Field research emphasizes the adaptive significance of traits, interactions between species, and population dynamics. Opportunities for field research are provided locally at the Macoupin Nature Recreation Area just outside Iowa City, with large, temperate hardwood forests, and old fields. The Iowa Lakes Laboratory on Lake Okoboji, with yew-studded laboratory facilities, includes an aquarium, as well as a fish 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, Nepal, Central America, the Great Smoky Mountains, the Mohave Desert, the American Rocky Mountains, and the Florida Keys. The Smithsonian Institution Laboratory on Barro Colorado Island in Panama and the Parque Nacional de Santa Rosa in Costa Rica are among sites used by staff and students. The University of Iowa is a member of the Organization for Tropical Studies and regularly sends students to the Tropical Biology Course in Costa Rica. In addition, the UI has an ongoing program with the University of the Andes in Merida, Venezuela.
GRADUATE COLLEGE

indoor facility permits a wide range of studies, with variant equipment for observation and analysis, such as video-spectroscopes, movie cameras, walk-in environment chambers, computer terminals, a GC MS, and a PEP-12 computer. There is ample space for housing a variety of organisms, recently including mice, millipedes, orchids, insects, leaf-cutter ants, marine and freshwater invertebrates, termites, and fish and contracted fish. The botany greenhouse contains 10,000 additional organisms, but also a large collection of desert, jungle, aquatic, marine, and economic life. The botany herbarium contains more than 200,000 specimens. The Museum of Natural History, an institution of the American Association of Systematic Collections, houses more than 4,000 natural science specimens, with birds and mammals particularly well-represented among the vertebrates.

The atmosphere at Iowa is friendly and cooperative, and the approach can be interdisciplinary. Students may design their graduate programs to take advantage of collaboration, consultation, course work, and cooperationally opportunities with members of such departments as biology, botany, chemistry, computer science, geography, geology, mathematics, microbiology, physiology and biology, and statistics and actuarial science. Students are encouraged to participate in departmental and interdisciplinary positions of responsibility on faculty committees.

Financial Support
All graduate students are offered financial support. Teaching assistantships, research assistantships, and postdoctoral training fellowships are available. Tuition scholarships, fellowships, and internships are selected each year for the TRF award. Teaching/research fellowships. The Rootes Fund assistant students may be selected for the Postdoctoral Assistant-in-Instruction Program or the NSF fellowships for students in behavior, and may compete for funds from the University. Computer funds are available for graduate students and faculty. For further information and application materials, contact the Department of Biology or the Department of Botany.

Genetics
The Ph.D. program in genetics is an interdisciplinary program involving members of the departments of Biochemistry, Biology, Botany, and Microbiology, as well as a number of faculty members in clinical departments. See "Genetics" in the "College of Liberal Arts," section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Inter-University Center for Film and Critical Studies in Paris Program

The University of Iowa is one of a consortium of 23 colleges and universities associated with the Council on International Educational Exchange (CIEE), which sponsors a Film Studies Program and a Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Americain du Cinéma et de l'Image à Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train film analysts or technicians. The curriculum provides students with courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between films and other art forms—film, culture, film and language, and film and psychoanalysis. Students discuss themes such as the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and腱=210; the classical Hollywood film; French cinema during and after the period of the Nouvelle Vague; and French and American avant-garde cinema. Participants study the works of Metz, Frodon, Barthes, Lacroix, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent developments in French political thought and social institutions, linguistics, social sciences, and literary theory. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and visual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors, but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who wish to explore the applicability of modern French theory to a variety of disciplines.

A recent addition to the program is a specialization in history characterized by the application to historical research of insights from contemporary film theory, such as linguistics, cultural geography, art history, and critical economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and the social, economic, and cultural development of groups of ordinary people, seen in their urban or regional contexts. A student may concentrate in one of these programs, or may cross enroll in one program combining elements from both study centers.

Participating students are admitted to the University of Iowa for the autumn quarter and are eligible to take selected courses within the University of Iowa as well as those specifically designed for the center. The program is open to both undergraduate and graduate students from The University of Iowa. For further information contact the program coordinators.

Iowa Quaternary Studies

Program

Students working towards master's and doctoral degrees in the departments of Anthropology, Botany, Geography, Geology, and Statistics and Actuarial Science may develop programs emphasizing some aspect of Quaternary studies. Students with particular interests not represented by the program may design a program that will broaden their program with courses in three collateral sciences as they progress towards a degree of their chosen field.

Research by the faculty and students in Quaternary geosciences and paleoclimatological studies using pollen, vascular-plant macrofossils, microfossils, insects, and vertebrates; studies of glacial geology, geomorphology, and stratigraphy, fluvial geomorphology, paleohydrology, and stratigraphy; soil stratigraphy and geomorphology; paleoecoclimatology of rocks and sediments; studies in vertical distribution, geography, and ecology; studies of hunter-gatherer societies and their environments; and studies of cultural development and social change have resulted in publication of books and articles on the species and in the Quaternary Research, the Quaternary Science Review, the Quaternary Research, the Quaternary Science Review, and the Quaternary Research, the Quaternary Science Review, and the Quaternary Research. Faculty available on campus include both named and hand-operated coring devices, laboratories for sedimentologic analysis, pollen preparation, vertebrate preparation, artifact preparation, X-rays, equipment, optical microscopy, and...
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 for further information. Established joint programs include:

- Business Administration/Library and Information Science
- Economics/Urban and Regional Planning
- Hospital and Health Administration/Urban and Regional Planning
- Social Work/Urban and Regional Planning
- Preventive Medicine and Environmental Health/Urban and Regional Planning

Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See "Medical Scientist Training Program" in the "College of Medicine" section of the Catalog.

Neuroscience Program

The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education and research training aimed at understanding the structure, function, and development of the nervous system and its role in behavior. See "Neuroscience Program" in the "College of Medicine" section of the Catalog.

Transportation Studies

The Program in Transportation Studies is an interdisciplinary, nondegree-granting program dealing with the planning, analysis, and operation of transportation systems. Students participate in the program in conjunction with work toward a graduate degree in Civil and Environmental Engineering, Geography, or Urban and Regional Planning. When the graduate degree is awarded, an entry is made on the student's transcript certifying completion of the Transportation Studies Program. For further details, see "Transportation Studies" in the "College of Liberal Arts" section of the Catalog.

Urban and Regional Planning

The graduate program in urban and regional planning is a professional/master's program that prepares students for widely varied positions in government and the private sector. The program has a strong policy orientation that enables its graduates to understand the factors affecting a particular urban or regional problem and to develop workable solutions. Students may choose to specialize in transportation, environmental quality, land use, housing, and several other areas. For further details, see "Urban and Regional Planning" in the "College of Liberal Arts" section of the Catalog.

Research Resources

The many and diverse research activities of the University are centrally administered by the Office of the Vice-President for 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 assistants; assistantships 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 $9,500 a year on a year-round basis, with all tuition paid; 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 assures 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 Mi450 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-semester enrollment or May 1 for summer-semester enrollment. These are general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination
All applicants prior to consideration for admission must take the General (Apitude) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whose admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending on 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 accessible 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 within the College require the General (Advanced) Test. Students are required to take the General (Advanced) Test in addition to the General (Apitude) Test. Inquiries about the Graduate Record Examination (GRE) should be directed to the address on the back of the back of the admission application.

C. English for Foreign Students
Prior to consideration for admission, foreign students applying to the Graduate College 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, Australia, Canada (except Quebec), or New Zealand, or have obtained a degree from a university affiliated with the University of Iowa in another country, these students must take and pass the TOEFL. Individual departments may set lower standards for admission.

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 V, Master's Degree," "Section XII, Two-Year Degree," and "Section XII, Doctor's Degree").

F. Determination 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 she or he intends to pursue. The only exceptions to this regulation are the limitation on 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 the student's graduate study with the approval of the department to which the transfer is proposed. To initiate such action the student must file a change of major or degree status in the Office of Admissions.

G. Status upon Admission
All students upon admission fall into one of the following 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 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.

3. Special—Students with a valid bachelor's degree with at least a 2.5 grade-point average who are not planning to complete requirements 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
conditioned status. A student registering as a special student can take no more than two courses during a semester or eight semester hours during the eight-week summer session.

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 nondonitorial students, a minimum grade-point average of 3.3 is required for admission to conditional status. A minimum of 3.3 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, his 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 average of 3.7 is required on the entire record of collegiate work.

Departments, or committees in charge of interdisciplinary 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 concerned.

For State Board of Regents' formal admission requirements, see "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 the advanced degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. Work for credit must have prior approval of the department of appointment, dean of the college of appointment, and the department in which study is to be pursued, and the Graduate Council.

J. Readmission

Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the applications for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of application.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one semester hour of graduate credit, with registration limited to a total of 18 semester hours. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included. The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that shown above with the approval of the Graduate College dean. Nine semester hours in the regular semester constitute full-time registration. (Fellowships are required to remain at least nine semester hours during a semester as a condition of their appointments.) One-fourth-time and one-third-time appointees are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session. (Continued)

B. Courses Not Included in Total Registration

In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Classes as carrying zero semester hours credit.

C. Changes in Announced Credit

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit at the discretion of the instructor. The number of courses a graduate student may take is limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. One-half-time appointees may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighths-time appointees may register for not more than 16 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for not more than 18 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 five semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration

No form of retroactive registration is permitted.

F. Registration for Part of a Session

A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed 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 credit under 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 184").

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 14.0)

5. Additional semester hours required on campus for the master's and doctoral thesis.
Iowa Regents' university (see "Section I.6."))

6. As many as nine semester hours of graduate work taken at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:

1. Course work transferred from another institution
2. Correspondence courses

H. Extramural Fees and Privileges

Extramural course work may be counted as residence credit only if the student has been admitted to a departmental program in the Graduate College (see "Section I.4") and pays established fees. (See "Section II.5.C." for special fees applicable to postgraduate registration, which should not be counted with extramural registration for residence credit.)

I. Correspondence Courses

Correspondence study credits do not count as residence credits. No more than nine semester hours of graduate correspondence work can be applied toward an advanced degree. Such credit must be acceptable for the student's plan of study and must be named after the student has enrolled in the Graduate College. In some instances, graduate-level correspondence study credit earned after a student has received a bachelor's degree but before enrollment in the Graduate College may later be credited toward an advanced degree with approval of the Graduate College and recommendation of the major department.

A graduate student may not register for correspondence courses without the approval of the executive of his or her major department and of the Graduate College dean.

J. System of Course Numbers

Courses primarily for graduate students are numbered 300 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 00 to 199. Courses below 100 are not accepted for graduate credit. Graduate credit may not be earned for taking courses numbered below 100 by registering in such courses at readings, special projects, or independent study having course numbers of 100 or above.

K. Auditing of Courses

Upon the recommendation of the instructor and the adviser, the dean of the Graduate College may permit graduate students to audit courses for zero credit. Auditing of courses is not permitted for a student who is currently registered.

L. Dropping of Courses

All graduate students who drop courses after the deadline established by the dean of the Graduate College for each semester and published by the registrar shall receive the grade of F unless the entire registration is withdrawn. This rule applies only to the Graduate College dean on the recommendation of the College's Health director or the Student Counseling Service. If a student withdraws registration after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to register.

Section III. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, enables a doctoral student to take advantage of special resources available on another campus but not available in his or her own campus: special course offerings, research opportunities, superior laboratories, 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 approval by the student's advisor and the faculty member at the host institution, graduate dean at both institutions will be fully informed by the advisor and have the power to approve or disapprove.

3. A CIC Traveling Scholar will be registered at the host university, and fees will be collected as required by that institution. The student registers for 100/500 CIC Scholar at The University of Iowa.

4. Credit for the work taken will be recorded at the home university.

5. Where deemed additional information should be obtained at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on any campus. Each University reserves its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dishonor

A. Nondoctoral Students

A student, qualified on conditional status, shall be placed on probation if, after completing eight more semester hours of graduate work in this University, his or her grade-point average remains below 3.0, or he or she shall be denied permission to register, otherwise, the student shall be restored to good standing.

B. Doctoral Students

A doctoral student on regular status shall be placed on probation if, after completing eight more semester hours of graduate work in this University, his or her grade-point average remains below 3.0, or he or she shall be denied permission to register, otherwise, the student shall be restored to good standing.

C. Restriction on Students on Probation

A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may he or she receive any graduate degree or certificate.

D. Departmental Regulations and Dissemination of Information

In addition to the above University-wide requirements, departments may establish initial and continuing rules that determine the individual's student standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each student's department and the office of the Graduate College dean. Copies may be available to interested students, departmental office, and departments shall make all reasonable efforts to inform students of these changes in standards or procedures. The Graduate College, the student's department or other departmental review standards for a given student. To the extent permitted by the department to the student and the Graduate College, all rules and regulations of the department shall be followed. The Graduate College shall take reasonable steps to provide a timely notice of rule changes, with appropriate commentary and advice regarding the interpretation of the rules. The Graduate College also shall be responsible for providing the original and the copies of the rules appropriately adapted, and the departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental regulations on policy, departmental grade-point requirements, requirements for...
chairs from one degree program to another within the department—especially from the master's to the Ph.D.---departmental probation and dismissal policies and procedures (see "E" following), and other matters as are appropriate. The nature of the departmental advisory system shall be explained to the incoming student.

E. Academic Progress, Departmental Probation, and Dismissal Procedures

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way(s) the student is failing to meet the standards. The student shall be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as conditional admission or probation are imposed, the department shall give at the time of its imposition written explanation of these status and its time limits.

A student who will not be permitted to reenter for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may follow failure to meet conditions of probation, conditions of probation, pre-announced departmental good-cause requirements or other standards, or failure to be regularly scheduled examination or formal evaluation. If a student judges the dismissal decision improper, the student has a right to appeal. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean, and shall allow for the appeal by the student of a decision of the procedures. These procedures shall be included in the departmental regulations described above. (See "Section N.D."

F. Graduate College Review of Departmental Decisions

Questions involving judgment of performance will not be reviewed beyond the department level. However, the student feels there has been unfairness or some other inequity concerning dismissal, the student may request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a Graduate College committee consisting of both student and faculty members to conduct the review and recommend to the dean possible courses of action. The review by the Graduate College is final.

Section V. Credits

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar. A report of this action will be sent to the student and to his or her major department. Credit toward an advanced degree at Iowa must have the approval of the Major department and the dean of the Graduate College.

B. Residence Transfer Credit

After admission to a departmental program in the Graduate College, residence credit from another Iowa Regents university may be counted as residence credit at this institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its applicability toward the degree. (See "Section X.D." and "X.C." for minimum semester hours required for the master's and doctor's degrees.)

C. Reduction in Credit

For courses or seminars in independent study, thesis, and research, an instructor may report less credit than the number of semester hours for which a student is registered.

D. Graduate Credit for Veterans

Credit may be granted for military service in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of grading scales as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. Withdrawal of Registration and Proportionate Credit for Students Entering Military Service

1. Students who leave within the first six weeks of the semester receive no credit.

2. Students who leave within the period of 7 to 13 weeks receive one-half credit.

3. Students who leave within the period of 10 to 13 weeks receive two-thirds credit.

4. Grade reports for the one-half and two-thirds credit periods are issued when the instructor reports given only as satisfactory or unsatisfactory. (C) Credits to be assigned on the basis of total registration minus for courses with a failing grade and on a full-time basis for courses to be counted toward specific degree requirements only after the student returns and then only with the department's approval.

5. Students who complete the two-thirds receive full credit.

6. Grade reports for the full credit period: (a) Grades are to be reported only at the end of the semester. (b) Credit is to be reported in specific classes.

7. In each instance the instructor reports the student's credit, grade, and date of withdrawal. No credit is counted unless the student's work is satisfactory at the time of leaving.

8. The amount of credit is thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less than zero credit may be assigned.

Section VI. Marking System

A. Marks Carrying Graduate Credit

These are A, B, C, and S---satisfactory, and U---unsatisfactory.

B. Marks Carrying No Graduate Credit

These are D—poor, F—failed, I—incomplete, W—withdrawn without discharge, N—not attended, 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, E.) Students must remove the mark of I from the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with F's from the spring semester are except from completing the course during the succeeding summer session.

Specific conditions for the submission of student work to the faculty for the faculty's report on I grade 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 incompletes, removal of an I in a course completed only through completion of the specific work for which the mark is given.


Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work. U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their type or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for no more than one section 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 understood by the instructor and student.
G. Research Associateships and Postdoctoral Fellowships

These provide for independent research. Appointment is made through the Office of the Dean of Graduate Studies. Prior approval is essential.

H. Credit

No academic credit is allowed for the teaching or research service for which the student receives initial appointment as a graduate or faculty research assistant.

I. Loans

Graduate students requiring financial assistance may apply for loans at the Office of Financial Aid. See "Financial Aid" in the "Learning at Iowa" section of the Catalog.

J. Other Forms of Support

Many departments offer financial assistance in the form of traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The subject areas in which the Graduate College offers degree programs are listed under "Advanced Degree Programs" at the beginning of the "Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees

A. Application for Degrees

The student must file an application for an advanced degree with the registrar not later than two weeks after the start of the quarter 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 who must register for the summer quarter need to have final approval by the Board of Regents. Registration for the first term of the degree must be completed by July 1.

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.
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 academic year without additional registration.

Section X. Master's Degrees

A. Kinds of Degrees

Master's programs require a minimum of 36 semester hours to lead to the Master of Arts degree. Master of Science, Master of Business Administration, Master of Comparative Law, Master of Arts in Teaching degree, must complete at least 30 semester hours at the Graduate College. For additional requirements, see also "Section B: Degree Requirements and Examinations Information." 

C. Major and Prejudice Fields

The plan of study required provides for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. Residence Requirement

Of the minimum of 36 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa, after admission to a departmental program in the Graduate College. Various forms of electronic thesis enrollment may be considered toward fulfillment of this 24-hour residence requirement. (See "Section C. G. Graduation Registration") in addition to regular on-campus registration. However, at least six residence semester hours on-campus are required, except for those departmental programs which ensure sufficient interaction between the students and the graduate faculty and have received approval from the Graduate College. Please contact the Graduate College for information on this on-campus requirement.

E. Reduction of Old Credits

Credits for a master's degree taken more than 10 years from the degree in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional college will be directly related to the master's major field of study in the Graduate College and be approved as a part of the plan of study by the student's advisor and the major department. The plan of study must be completed while registered for a professional degree in the law, medicine, or dentistry. The plan of study must be submitted to the major department, in writing not later than the third semester of residence, for approval. The departmental program will be considered for final approval by the major department. The student may be enrolled in the major department.

G. Two Master's Degrees

The granting of this 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 36 semester hours of graduate credit.

H. Master's Degree with Thesis

Not more than nine semester hours of credit for thesis research and writing shall be counted in satisfying the 36-semester-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See the Graduate College Thesis Manual.) After approval by the Graduate College and by the thesis committee, the copy of the thesis must be deposited with the Graduate College not later than four weeks 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, may be awarded upon the completion of a curriculum 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 oral or written or both. Such an examination will not duplicate course examination. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two satisfactory votes making the committee report satisfactory. 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 for the degree may be permitted to take the final examination without formal notice to the student, but not sooner than the next regularly scheduled examination period or 90 days following the examination.

The examination may be repeated only once.

Upon recommendation of a department, the student may be permitted to take a doctoral 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 major department or program, and at least two of whom are from the major department. The examining committee covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and, at his discretion, the Graduate College dean may add a member to 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, playwriting, acting, producing, stage design, musical performance, composition, instrumentation, poetry, fiction, and translation. Central to the program of study is a laboratory, a studio, a painting, a musical composition, or any other 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 36 semester hours of graduate credit, at least 24 of which must qualify for residence credit at this University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately with a minimum combined total of 60 semester hours of graduate credit.

For other requirements see: "Section X: Plan of Study; "G. Major and Related Fields; "H. Reduction of Old Credit; "J. Limit on Pre-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 final examination for 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, 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 one 12-month period or during two summer sessions. Two-thirds 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:" E. Limit on Professional Courses; "F. 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 the University on candidates who give evidence of knowledge and competence in the professional social workers 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 met by combining both graduate and undergraduate courses, but only those courses that 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 the equivalent of the 60 semester hours. In no case may a student quality for the degree on less than 60 semester hours of graduate credit.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is combined with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work in August.

For other requirements, see "Section X.B. Plan of Study: "C. Major and Related Fields:" E. Limit on Professional Courses; "F. Master's Degree with Thesis;" and "K. Examining Committee."

Section XII. Doctor of Degrees

A. Character of Degree

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The Doctorate is the highest degree awarded by this University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time instruction in the major discipline. At this University, beyond the first 24 semester hours of graduate work, this requirement can be met either by: (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters; or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a half-time appointment by the department as contributing to the student's doctoral progress. (For purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study

The development of a plan of study at the doctoral level is the responsibility of the students working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examinations. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examinations.

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 be duly interested, which shall be designated as the sponsoring department. Final approval of such individual program is granted by the Graduate College dean, who may add members to the student's supervisory committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, if permissible, the name of the sponsoring department.

F. Reduction of Old Credits

Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

G. Limit on Professional Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for the professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisor. Work completed while registered for a professional degree in internal medicine or dentistry will not be counted as part of the requirements 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 doctor's degrees. The master's examination may be combined with the comprehensive examinations for the doctorate; these candidates. The examining committee will retain the regular examinations for 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 required. Specific requirements will be found in the departmental statements of advised procedures (see "Section IV.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 filing of the plan of study and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be passed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation at the candidate's mastery of the major and related fields of study, including the tools of research, principal competence has been certified.

The comprehensive examination is not a deterred qualifying examination. It is intended to serve as an inclusive evaluation of the candidate's mastery of the subject or a near the end of the formal formal preparation and prior to the commencement of dissertation. The comprehensive examination and the final examination, which a concerned faculty of defense of the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

In the event of a report with two or more votes of "unsatisfactory," the exact stipulations of the committee should be noted on the report form. The statement must specify the time allowed for satisfying the stipulations and must be specific in defining the area if 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 "unsatisfactions." In the 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 adviser, the departmental executive, and the Graduate College dean.

All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty. The student should register for the 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 one or more PhD. Postcomprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department chair or director of graduate studies) and the student's adviser determine that the student is neither making significant use of University facilities (except library privileges) nor pertaining of consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that 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 Ph.D. can be no later than the end of the semester (summer excluded) following the spring in which the final examination is passed; failure to meet this deadline will require revaluation of the student.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation adviser. The abstract is published in the journal Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty 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. 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—and a mere recapitulation of the procedures followed—and an intensive questioning on research designed to test the candidate's immediate context of the investigation.

The final examination may not be held until the next session after the student passes the comprehensive examination not until the thesis is accepted for first deposit by the Graduate College; however, a student must pass the final examination not later than five years after passing the comprehensive examination. Failure to meet this deadline will result in a removal only on the student to determine his or her qualifications for taking the final examination. The action to follow is as follows for those as those for the comprehensive examination. (See "312.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 four hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will 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 once at the option 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 to the appropriate and justified reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

000/000 Ph.D. Postcomprehensive Registration 0 a.b.
000/001 Master's Final Registration 0 a.b.
000/107 CREC Final Project Program acc.
000/006 CREC Scholar acc.
000/005 Iowa Liverpool Exchange Program acc.
College of Law

Deans: N. William Niven, Jr.
Assistant deans: Gregory H. Williams
Assistant deans: Thomas C. Seiter
Professors: David C. Baldu (Law B. Yee
Professor), Patrick B. Bauer, David L. Barney (S.
J. Randolph P. Bensohn, Arthur S. Borofield (John
P. Murray Professor), William L. Brad, Steven J.
Burton, William C. Bass (Theodore C. McVey
Professor), Martha D. Charnables, Robert R.
Cleary, Charles W. Davis, Dorsey D. Elia, Jr.,
Samuel M. Fiske, Mary Louise Follins, James K.
Fleha, Josephine Gitter, Michael D. Green, N.
William Hayes, Jr. (Bowersfield Professor), Randal
F. Hankins (Adjunct Professor), Richard A. Morkar,
Paul N. Neubauer, Stephen L. Saor, Peter M.
Savage, Donald W. Schreiber. Stephen T. Senior,
Leo S. Vastenburg, David H. Gerson (Law School
Foundation Professor); Larry H. Rued (Fulbright
Professor of Law), Berma H. Weston (Fulbright
Professor), Alan L. White (Shepheard & White
Professor), Gregory H. Williams
Assistant deans: professors: Eric C. Anderson,
Jonathan C. Carlson, W. H. Knight, Kenneth J.
Kenna, Barry D. Maneschi, H. Johnson Powell,
John C. B. Schei, Gerald B. Wettzauer
Clibalated Faculty: Patricia Fenn, Carroll Luce,
Paul Papak, Barbara A. Schwartz
Lecturers: Robert Fessen, Neil Hamilton, Nina
Hamilton, Kristine Hilde, Nicholas Johnson, Elmar
Jones, Philip A. L. Leif, Barry A. Liddell, Philip
Means, Jerry Mitchell, David A. Mort, James
Necias, John Pape, William V. Pelikan, Earl F.
Rose, Anthony V. Steichen, Serena Xier
Degrees offered: A.B., M.C.L.

Moving to the new Law Library
Program Objectives

The overall objective of formal legal education is to establish a foundation for a lifetime of professional growth. The educational requirements are designed to foster this foundation. The demand for legal advice is increasing. An appreciation of the role of law and lawyers in society. A unifying feature of the program is the conviction that these objectives can be achieved best by an educational program that cultivates student participation in the learning process and creates regular opportunities for 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 uniquely suited in the extent of its commitment to full-time faculty and the development of professional skills in a small-group individualized instruction format.

The University of Iowa College of Law, you upon its graduates the degree of Juris Doctor (J.D.). To be eligible for the degree, a student must satisfy the residence requirement, receive credit for 30 semester hours of approved courses in a program of instruction that includes 60 semester hours of approved courses, and satisfy the college's five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they devote substantially all of their time to educational pursuits. For this reason, students are expected to pursue their legal training on a full-time basis. This policy coincides with the accreditation standards of the American Bar Association and the Association of American Law Schools. In extraordinary circumstances, it may be possible for a student to enroll for less than 10 semester hours per semester. Students who for any reason may be unable to attend on a full-time basis should contact the dean's office before registering for classes.

Options for Full-Time Study

The college offers two starting dates for entering students: late May (at the beginning of the fall semester), late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study. These students also may attend summer school at any point during their careers.

A class of up to 45 students is allowed to enter law school in May of the year for which they applied. Students in the entering class complete nearly a full semester of work in the first eleven-week summer session, and if they remain in the accelerated track by attending summer school in each subsequent summer, they can graduate nine months earlier than the regular class. Thus, accelerated student who begin law school in the summer of 1986 may graduate in August 1988. Students who begin school in the accelerated program, however, are not required to complete an accelerated track, but may switch to the regular three-year sequence of study.

Both the accelerated and regular programs consist of 30 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may register for different courses or lower hours without permission of the dean. No student may take more than 17 semester hours per semester or 33 semester hours in summer session without permission of the dean.

Summer Session

The summer session consists of two periods of five and one-half weeks, during which a student may attend summer school and take first-year courses normally offered. Non-accelerated students may attend either 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 the development of each student's skills in legal analysis, argumentation, research, and writing.

In the fall semester (or summer session for accelerated students), the entire class is divided into sections of approximately 20 students. In the spring (or fall for accelerated students), each section consists approximately 20 students. The subject matter of the 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 developments the entire experience both in class and in individual conferences.

Upper-Class Program

In the second and third years, students have the opportunity to gain exposure to a broad array of substantive areas of the law; to concentrate course work on writing and research opportunities in particular areas of interest (e.g., through specialized courses and seminars); and to expand their training in one or two written and advocacy skills, in interviewing and counseling, in negotiations, and in litigation. Very few requirements exist in the second and third years. All students must take 19210 Appellate Advocacy I in the second year. Before graduating, all must take 19222 Constitutional Law I and 19336 Criminal Procedure.

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 19210 Appellate Advocacy I and the upper-class small section. He or she can earn the remaining three credits through any combination of courses and activities that carry writing credit, including seminar papers, independent research papers, Iowa Law Review, Journal of Comparative Law, 91:484-499 Legal Clinic, 91:410-411 Client Counseling, 91:410-411 Client Counseling, and advanced appellate advocacy activities.

Law Student

Students who have completed one-half of the Writing course toward the B.A. degrees are eligible to participate in the College of Law Legal Clinic Program, which offers opportunities for students to supply their theoretical knowledge to real clients under the supervision of law faculty and other attorneys. Clinic students participate fully in interviewing, fact investigation, pretrial discovery, negotiation, and courtroom proceedings.

Legal Clinic

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 Iowa correctional institutions 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 Chapter's Advisory Board are also involved in law clerk to trial court judges and public legal service. They observe court proceedings, conduct research, and draft legal memoranda and court papers.

Finally, the Iowa Law Review, an Interim Program are assigned to work as legal assistants to state legislators and to
Law School Admission Test
Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Law School Admission Services Box 1000, Harvard, PA 19086 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 in various locations in the United States and abroad. Applicants are urged to take the test during the fall preceding the fall semester for which they are making application.

The last test that will be considered by the admissions committee for the spring or fall first-year class is the test given in February. However, if the test is taken in February, it may put the applicant at a competitive disadvantage since it takes at least four weeks for the College to receive the results. February testers must have their applications on file by the first of March. The University of Iowa prior to the March 1 deadline. Foreign student applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL), which is administered the Educational Testing Service, Princeton, New Jersey (800) 468-2060.

Deposit
Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $50 by April 1. Applicants accepted after April 1 must make the deposit within two weeks of notification and be sent a favorable action on their applications. The deposit need not be made if a financial aid and student loan application is submitted. However, the deposit is due within two weeks after acceptance and is used as the student's financial aid application. For those who enroll, the deposit is credited toward the student's first semester bill. An applicant who fails to make the deposit within the time specified forfeits his or her place in the entering class.

Evaluation Process
For a more detailed description of the admissions evaluation process, please consult the college's bulletin, which is available from the Admissions Office of the College of Law.

Admission to the Iowa Bar
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Law Building
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<th>Department</th>
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<td>Radiology</td>
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<td>Surgery</td>
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<td>Urology</td>
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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 cancer biology, 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 formal 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 laboratories available to them, 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, metabolism, endocrinology, and physiology also are conducted. This important resource of the college is fully financed by federal monies, enabling all faculty members to conduct carefully supervised studies that cannot be accomplished with equal precision with existing beds of the affiliated hospitals.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates the research and training programs related to cardiovascular diseases and encompasses the following federally funded programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Antithrombotics, Specialized Center of Research in Ischemic Heart Disease, Hyperlipidemia Research Clinic: 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 disorders, and it was established in 1970 with support from the National Institutes of Health, the American Diabetes Association, and the National Institute of Arthritis and 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 humoral controls of gastrointestinal function. It includes research on control of normal and abnormal motility, models, toxicity, and analysis of data and biologicals.

Alzheimer's Disease Research Center

This recently formed center studies the neuropathology and neurobehavioral behavior associated with Alzheimer's disease and related conditions with a view to improved diagnosis and treatment.
Educational and Patient Care Facilities

First and second-year classes are taught in the Bowen Science Building and the Medical Laboratories. A Health Sciences Library is a vital resource centrally located on the medical campus. Students acquire clinical experience in the 1,643-bed University of Iowa Hospitals and Clinics complex, in the adjacent 152-bed Veterans Administration Medical Center, and in a network of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members comprise the 444-member clinical staff of The University of Iowa Hospitals and Clinics, whose clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 581 resident physicians and dentists who make up the three-tier staff of the hospitals and clinics, where facilities are provided for training 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 local 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 outreach activities of the College of Medicine facilities are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Carver Surfacet 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 purchase, maintenance, and record-keeping of a wide variety of animals. The bioengineering facility provides space for electronic design, construction, and repair services. The Office of Consultation and Research in Medical Education provides services to educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, liaison, and cooperation 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 craft forms. The spectroscopy of compositions is greatly expanded by Gaschromatography, a computer-generated graphics system. The PS facility meets federal guidelines for inclusion of health-related materials in the small-practice environment. It also is used for research on other biomedical human or animal pathology.

A facility for mass spectrometry provides service for structural study of important biological molecules and their analyses 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 skills. 60 183 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical pathology and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed. 68 104 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 semesters.

Second Semester

68 105 General Histology for Medical Students provides a course of study for the core instruction concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

115 102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small-group experience through which they learn about and improve methods to communicate sensitively with patients and colleagues.

63 110 Biostatistics provides guidelines for the application of statistical principles to the biological sciences. Emphasis is given to the interpretation of statistical data in medical journals.

Second Semester

72 222 Medical Physiology offers the student an understanding of responses that an organism gives to external stimuli and provides a basis for understanding the integrated function of organs. Such a model 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.

61 102 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 Neurosciences is an introductory course dealing with the basic principles of neurophysiology and neuroanatomy of the human central nervous system. The laboratory primarily involves the anatomical study of spinal cord and brain.

65 351 General Pathology for Medical Students introduces medical students to basic concepts of the functional anatomy and histology in this semester to increase efficiency of the learning process. This course is self-paced, with the student "testing out" of each segment as it is completed. Emphasis is placed on pathogenesis and altered function in relation to tissue degeneration, infection, and growth disorders. Clinical problems relating and discussion periods have replaced laboratories in this course.

Third Semester

69 292 Systems Pathology for Medical Students applies the principles given in the preceding two years of classes in an organ system approach. Student-centered learning is fostered by discussion groups in practice and 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.

71 016 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 of several 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. A large group of morning is spent in a myriad of medicine that do not fall naturally into organ systems, and an emphasis is placed on some key subjects.

Throughout the 16 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history taking, physical examination, habits of care, concern, and cooperation 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 physical medicine, six weeks in surgery, pediatrics, psychiatry, and obstetrics and gynecology, and two weeks in each of anesthesiology, dermatology, neurology, ophthalmology—head and neck surgery, orthopedics, emergency, and family practice. Students spend most of this time in Iowa City.

The clinical clerkship year is the most critical period of training in medical education, for this is when the student takes on the posture of a physician to learn first-hand the complexity of medical science and how it is 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 breadth, comprehensiveness, 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, Carroll Brown Medical Student Loan, and Weld Loan are College of Medicine programs. The Dr. George Scaife 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 merit.

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 Students, 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 year for which application is being made.

Prospective students are urged to apply as early as possible. The closing date is December 15.

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 also must file with the University Office of Admissions an official transcript from each college he or she has attended.

Requirements

Applicants for admission to the College of Medicine must have:

- Received the baccalaureate degree;
- Completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year in medicine;
- Completed three years of a baccalaureate program meeting the general education requirements of the college he or she is attending.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory course
- Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school.
- Chemistry: a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles.
- Biological sciences: a complete introductory course in the principles of animal biology, or a course in zoology, and an advanced biology course.

All the foregoing must be taken with appropriate laboratory work.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the Doctor of Medicine degree. The medical curriculum programs demonstrated 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 chairman. Two are from two basic science departments, and three are from three clinical departments. There is a medical student member from either the junior or senior class. The dean of the College of Medicine makes faculty appointments to the committee after consulting with the executive committee, and appoints the student member after consulting with the junior and senior class council.

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 is not academically completed courses in a preceding grading period may be recommended by the promotions committee, provided that an appropriate tutorial program is arranged for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on each examination 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 requirements are described in detail in the Handbook for New Students that medical students receive upon matriculation.

Scholastic performance in the first three years is measured by the letter grades assigned in each academic semester and on a continuing basis. The student who is found, after good appraisal, to have not completed the work of a course shall not receive a passing grade.

The promotions committee meets at least three times each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews the course directors the records of all students who have received a grade of F or I during the previous grading period. The committee reviews the record of any student presented by the course directors committees or the associate dean for medical student affairs as doing continually poor academic work, or failing to demonstrate satisfactory progress in any of the eleven skills or abilities detailed above, or not meeting the medical ethics standards. The committee considers other business or
procedures as deemed necessary to perform its duties as set forth in this charge.

The promotion committee recommends specific actions to be taken in the case of any student whose skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. These recommendations will be forwarded to action to the medical council and executive committee, meeting in joint session to represent the faculty. Possible recommendations include immediately dismissing the student from the college; requiring the student to repeat all or any part of the curriculum; or allowing the student to continue to either a regular or a decelerated schedule. Students having ungraded grades of failure will be placed on academic probation. A grade of Incomplete, if not reinstated in the time and manner specified in the promotion committee’s recommendation, becomes a grade of failure. Students who are in a probationary status may be considered for dismissal should further academic difficulties arise.

The promotion committee presents all recommendations for the reinstatement of the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which act on the recommendations for the faculty.

Relationship to Course Directors Committees

The course directors committees will provide advice to the promotion committee for students and will be a resource for and provide advice to the promotion committee.

Appeals

Students desiring to appeal promotion decisions must submit an appeal in writing to the dean of the College of Medicine within two weeks after the date of written notification of decision and shall be heard, and decisions rendered, by the medical council and executive committee meeting in joint session. Students may request an opportunity to appear personally before the joint session to make a statement and to answer questions.

Leave of Absence

The College of Medicine believes that certain students may benefit from being granted a leave of absence from the college for specific academic or personal reasons. A leave of absence should be requested from the associate dean for medical student affairs. It will be granted at the discretion of the dean. All leaves must be arranged in advance of the student’s absence. If a student requests at any time that a leave begin during a clinical clerkship or clinical elective, the student also must obtain permission from the course director.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result, at the discretion of the department, in a grade of F.

Withdrawal

A student may withdraw from the College of Medicine upon approval of a written application submitted to the office of the associate dean for medical student affairs.

Reinstatement

Application for reinstatement by any student who has withdrawn voluntarily or who has been required to withdraw from the college must be received in writing in the office of the dean at least four months prior to the requested date of readmission. The faculty is authorized to refuse continued or further registration to any student, if it believes that he or she has not lived up to the expected general fitness requirements for entering the medical profession, as described in detail in the Handbook for New Students. Ordinarily such action is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Informal Procedures

When a dispute arises between a student and a faculty member or department, there is often a way to resolve the problem. The medical school has a formal procedure as stated in “Promotion Policies and Procedures” and an informal procedure as outlined below. In the College of Medicine, students with problems or complaints should first attempt to resolve the issue with the faculty member with whom there is a problem. Lacking a satisfactory outcome, the student then should turn to the appropriate chair or head. If satisfaction is not obtained, the student may discuss the complaint informally with the appropriate dean for medical student affairs of the College of Medicine. This informal procedure would not be the only means of involvement of the office of the dean in an official capacity. Should there be evidence not resolve the situation, the student may fill a formal complaint through the office of the dean of the College of Medicine.

This informal procedure allows the greatest probability for all parties in resolving the conflict and does not involve anyone in 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. 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 technologists, 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 study and upon the student’s compliance with all the regular requirements for admission to such a course, or by action of the faculty upon recommendation of the professor in charge of the course.

Nondepartmental Courses

561 Medical Ethics Fourth Year am.
561 Medical Ethics Third Year am.
563 Nootropics 2 a.b.
564 Medicine in the Humanities 2 a.b.
565 Human Sexuality for Health Professionals 1 a.b.
566 Epidemiology (3 credits will count toward the quality time of students for up to one medical student. Limited registration)

567 International Students for the Medical School 2 a.b.
568 Introduction to historical subjects through travel and study abroad (10 credits 4 credits; 4 credits; 4 credits; 2 credits)
569 Law and Medicine for Physicians 2 a.b.
570 Medical Ethics in the Laboratory 2 a.b.
571 International Students for the Medical School 2 a.b.
572 Medical Ethics in the Laboratory 2 a.b.
573 Human Sexuality for Health Professionals 1 a.b.
Courses
1816 Clinical Anesthesiology 2 a.h.
Clinical anesthetist in the operating room and recovery room. Course includes clinical, anesthetic conferences, small group didactic sessions. Required for junior medical students.

1840 Clinical Anesthesiology Senior 2 a.h.
Instruction and practical experience in various facets of anesthetic for surgical procedures: basic techniques of general, spinal, epidural, and peridural block anesthesia; instruction in analgesia in obstetrics and pediatrics; instruction in monitoring and interpretation of cardiovascular and respiratory functions; techniques of pain management; and exposure to critical care medicine.

1850 Intensive Care 9 a.h.
Evaluation and treatment of acutely ill patients in critical care units and specialized areas. Cardiovascular and pulmonary function, monitoring of cardiovascular status, some clinical aspects of shock and acute renal failure, advanced monitoring of patients, management of shock and critical care patients, and those needing ventilatory assistance.

1131 Junior Seminar 3 a.h.

1132 Clinical Anesthesiology Seminar 3 a.h.

1133 Basic Science Seminar 3 a.h.

1134 Worldly and Mortality Conference 3 a.h.

1135 Pain Clinic 3 a.h.

1150 Special Studies on Campus arr.
Research in a well-defined project leading to a semidiploma. Individually arranged by student with approval of the medical director.

1150 Special Study off Campus arr.

Division of Associated Medical Sciences

Head: Rita Montgomery

The Division of Associated Medical Sciences provides coordination of professional programs that presently include medical technologists, nuclear medicine technologists, physical therapists, and physician assistants. Flexibility is provided to graduate programs to prepare students for entry into these professional areas. The student is usually enrolled initially in the College of Liberal Arts and is assigned a faculty advisor from the division.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics: physics, computer science, and psychology are required by some programs and are highly recommended for others. The student should plan his or her study program carefully so that conflicts in specifically required courses do not occur. It is imperative that the student consult with the appropriate program advisor to assure the proper sequence of courses.

This is a typical curriculum for undergraduate students, with options being exercised according to consultation with program advisor. 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
1011 Rhetic 4 a.h.
Foreign civilization and culture 3 a.h.
Physical education skills 2 a.h.
4.15 Principles of Chemistry I 3 a.h.
2236-Mathematics 4 a.h.
Total 16 a.h.

Second Semester
1012 Rhetic 4 a.h.
Historical Perspectives 3 a.h.
Physical education skills 1 a.h.
4.14 Principles of Chemistry II 5 a.h.
373 Principles of Animal Biology (NMT, PA, PT) 5 a.h.
4.61 Principles of Chemistry Lab I (MT) 4 a.h.
Total 16-18 a.h.

Sophomore Year
First Semester
Humanities 3 a.h.
Social sciences 3 a.h.
4.12 Organic Chemistry I (MT, PA) 3 a.h.
29.11 College Physics (NMT) 4 a.h.
37.11 Principles of Animal Biology (NMT, PA, PT) 5 a.h.
61.157 General Microbiology (MT) 5 a.h.
Physical education skills 1 a.h.
Total 15-16 a.h.

Second Semester
Historical perspectives (MT) 3 a.h.
Humanities 6 a.h.
Social sciences 3 a.h.
29.12 College Physics (NMT) 3 a.h.
162-level zoology course (PA) 3 a.h.
4.122 Organic Chemistry II (PA) 3 a.h.
31.15 General Psychology (PT) 4 a.h.
4.101 Elementary Quantitative Analysis (MT) 4 a.h.
61.161 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 entrance to the Medical Technology, Nuclear Medicine Technology, and Physician Assistant Programs. Others complete the additional requirements below.

Junior Year
First Semester
Foreign language 4 a.h.
22C-7 Introduction to Computing with FORTRAN (NMT) 3 a.h.
29.11 College Physics (PA) 4 a.h.
37.11 Human Genetics 3 a.h.
10-103 Comparative Vertebrate Anatomy or 37.112 Cell, Tissue, and Organ Biology 5 a.h.

4.611 Elementary Human Anatomy (NMT) 4 a.h.
31.13 Introduction to Clinical Psychology (PT) 3 a.h.
Total 15-16 a.h.

Second Semester
Foreign language 4 a.h.
29.12 College Physics (PT) 4 a.h.
37.106 Cell Physiology 4 a.h.
211.146 Human Physiology (NMT, PT) 4 a.h.
121.126 Fundamental Genetics (NMT, PT) 4 a.h.
221.101 Biostatistics (NMT, PT) 3 a.h.
Total 16-15 a.h.

Senior Year
General education, elective, or advanced courses in these departments of: microbiology, biochemistry, or other sciences for specific degree requirements.

A student who has satisfactorily completed the prerequisites has satisfied the minimum academic requirements for admission to the clinical therapy program in the senior year.

Medical Technology

Director: Moria Schmalzleifer

Medical director: James A. Grow

Associate professor: James A. Grow

Lecturer: Moria Schmalzleifer

Associate: Larry Sufka, Ruthcon Sequline, James O'Caron

Assistant in training: Kathleen Kelly, Lucy Wall

Adviser: John Atabak

Adjunct associate: Thomas Pusey

Adjunct: Michael Lauten, Michael Lynn, Michael Laut, Michael Meyer, Glen Sauerwein, Karen Jones, Karen Jones

Degrees offered: B.S.

Medical technologists perform the laboratory tests on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories, clinics, physicians offices, and industrial, pharmaceutical, biological, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of specialized procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, the College of Liberal Arts, The University of Iowa Hospitals and Clinics, and the Iowa City Veterans Administration Medical Center. Successful completion of this program qualifies the student to take all medical technology certifications.
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 enriched prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December.

To apply for admission to the professional program, the student must be able to complete all of the health sciences and University graduation requirements by the end of the final semester (clinical) year.

Sixteen semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry.

Sixteen semester hours of biology, including a course in statistics.

Sixteen semester hours of microbiology, including general microbiology, physiology, and parasitology.

Admission is on a competitive basis. Minimum cumulative grade-point average of 2.5 overall and 2.5 in science courses is required. An applicant who satisfactorily meets the requirements may be considered for admission. The University reserves the right to change the requirements at any time.

Expenses
Medical Technology students in the professional year curriculum are responsible for their textbooks, University tuition, and student fees. Laboratory coats and equipment and use of microscopes are provided by the program.

Nuclear Medicine Technology
Director: Kenneth A. Holm

Medical director: Peter T. Kirchner

Technical director: John H. Alcock

Professor: Frank H. Chang, James B. Brehm

Associate professors: Richard J. Peterson, Peggy S. Symes

Assistant professors: Ray R. Conrad, William A. Pettit, Karen Reed

Clinical associate professors: James A. Poppo (College of Pharmacy)

Adjunct lecturer: John H. Holzer

Degree offered: B.S.

Nuclear medicine technology is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. It is a 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 detectors 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; and education, training, and administration. Technologists must possess strong knowledge in basic science principles and collection and interpretation of biological specimens to measure levels of hormones, drugs, or other body components. In all these functions the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, 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, the Commission on Accreditation of Allied Health Education Programs (CAAHEP), and the Nuclear Medicine Technology Accreditation Council of the American Medical Association. Fulfillment of the requirements established by the AABT 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 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.

Applicants are strongly advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in biology, chemistry, biochemistry, or microbiology. In this way, students who are not admitted to the NMT program can complete a degree in their chosen area.

Junior Year
Recommended courses:

601 Elements of Human Anatomy
721 Principles of Radiology
202C/ Introduction to Computing with FORTRAN

Examinations. The program is approved by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences. Assuming that the student has completed the required courses indicated above in the freshman and sophomore years, the remaining curriculum may be as follows:

Junior Year
First Semester
Foreign Language 4.0
7220 Human Physiology 4.0
63121 Dynamics of Health 3.0
Electives 4.0
Total 15.0

Second Semester
Foreign Language 4.0
37126 Pathology 4.0
69119 Instrumentation in Clinical Laboratory Science 3.0
69110 Biochemistry 3.0
Electives 3.0
Total 16.0

Senior Year
The clinical program comprises 12 months of didactic and practical instruction. The first summer session and semester are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in clinical laboratory science. During the last semester, the student rotates through the clinical laboratory facilities of The University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Medical Center, and attends additional lectures.

The program comprises the following courses:

69120 Clinical Microscopy for Medical Technologists
69121 Immunochemistry for Medical Technologists
69122 Clinical Chemistry for Medical Technologists
69123 Immunohematology for Medical Technologists
69124 Clinical Hematology for Medical Technologists
69125 Microbiology for Medical Technologists
69126 Clinical Chemistry for Medical Technologists
69127 Clinical Immunohematology for Medical Technologists
69128 Clinical Microbiology for Medical Technologists
69129 Clinical Hematology for Medical Technologists
69130 Clinical Laboratory Science Seminar
69132 Parasitology for Medical Technologists

For course descriptions, see "Pathology" in this section of the Catalog.
Financial Aid

Students in the nuclear medicine technology program are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University’s Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work in the Department of Radiology also is available on a limited basis.

Physical Therapy

Director: Gary Sodberg
Professors: Gary Sodberg, Gary Sodberg
Associate professor: David Nelson
Assistant professor: Carol Tiddy
Lecturers: John DeN, Byron Berks, Thomas Cook
Adjunct assistant professor: William Dostal
Adjunct instructors: William Dostal
Adjunct assistant: Virginia Dorsey, Jol Olt, Karin Kiermaier, Sarah Laskin
Lectures: John DeN, John Watkinson
Consultant: Frank Hart
Degree offered: Certificate in physical therapy, M.A.

Physical therapists participate in 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 continuing care. They are also involved in the administration of physical therapy facilities, the supervision of supportive personnel, and consultation with other health professionals.

Physical therapy offers a wide variety of opportunities for professional practice in general or specialized hospitals, in programs for disabled children, and in physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

Education in the program is available at three different levels: the basic professional certificate, the Master of Arts, and an 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 Hospitals and Clinics, the nation’s largest university-owned teaching hospital. The location enables several resources readily accessible to the Physical Therapy Program: basic science and medical faculty, basic science courses, and interesting 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
600 Human Anatomy 4.5 h.
10186 Fundamentals of Physical Therapy 3.0 h.
10115 Kinesiology 3.0 h.
10231 Therapeutic Physical Agents I 3.0 h.
10241 Introduction to Physical Therapy 1.5 h.
60252 Introduction to Human Pathology 1.5 h.

Second Semester
600 Human Anatomy and Neuroanatomy 4.5 h.
10186 Therapeutic Exercise I 2.0 h.
10216 Clinical Observation II 1.5 h.
10253 Introduction to Clinical Medicine I 1.5 h.
10212 Emotional Aspects of Disability 1.5 h.
10256 Physical Agents II 2.0 h.
10160 Fundamentals of Cardiopulmonary Therapeutics 4.0 h.
10149 Scientific Inquiry I 1.5 h.
Third Semester
101:102 Fundamentals of Personal and Clinical Sciences 3 s.h.
101:113 Therapeutic Exercise II 4 s.h.
101:113 Principles of Nutrition and Clinical Sciences 1 s.h.
101:95 Clinical Education and Rehabilitation 2 s.h.
101:120 Scientific Inquiry II 2 s.h.
101:121 Physical Therapy Macromolecular and Cellular Anatomy 1 s.h.
101:170 Prosthetics and Orthotics 1 s.h.

Fourth Semester
101:120 Clinical Internship 15 s.h.

Admission
A new class is admitted to the professional certification program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree.

A student entering the program after the third year of undergraduate study must be able to satisfy all requirements for the baccalaureate degree by successfully completing the first year of the professional certification program.

Undergraduate students who complete their preprofessional work at other colleges or universities must meet the general admission requirements of The University of Iowa College of Liberal Arts. They should consult with the director of the Physical Therapy Program to plan their preprofessional studies to meet the requirements of the Physical Therapy Program.

Regardless of academic preparation prior to admission, all students are enrolled in the same year-long preprofessional curriculum leading to certification in physical therapy. To be considered for admission, the applicant must have completed at least 54 semester hours of college study, including a complete introductory course and one advanced course in zoology or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (8 semester hours), a complete introductory course in physics (8 semester hours), a complete introductory course in psychology (6 semester hours), a general human systemic physiology course, one college-level mathematics course (3 semester hours), and statistics (3-4 semester hours). The student must have completed all admission courses in the major departments offering the courses, and all must include at least one four-hour laboratory instruction.

The applicant must have a minimum overall college-grade point average of 2.7, and should have a 3.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

All applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Results of the examination must be mailed to The University of Iowa.

Personal interviews are required.

The physical therapy admissions committee selects the applicants who appear to be best qualified for the study and practice of the profession.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is February 1.

Expenses
In addition to general University expenses, students in the Physical Therapy Program are responsible for purchase of uniforms, malpractice insurance, and course syllabi.

Graduate Programs
Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal, neuromuscular, and cardiopulmonary. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practicum experiences are offered to complement these specialties.

The master's degree requires a minimum of 36 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 dexterity evaluation), neuromuscular activity (electromyography, spinal reflexes, 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 in the cooperation among departments, such as neuroscience, internal medicine, pediatrics, orthopedic surgery, physiology and biophysics, anatomy, physiology, 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 and to become a practitioner of advanced levels of physical therapy practice.

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 2.7 or higher (on a 4.0 scale) on all undergraduate work. Two years of clinical experience also is considered highly desirable.

Application 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 a personal interview. The applicant also must meet the requirements established by the Graduate College.
Doctor of Philosophy in Physical Education (therapeutics)

Doctoral training related to physical therapy is received in a program in physical education with special emphasis on therapeutics. The program is described in detail under "Exercise Sciences and Physical Education" in the "College of Liberal Arts" section of the Catalog. A student successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

- Be able to perform original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices.
- Be able to teach at the basic professional and master's degree levels of physical therapy and should have experience and show promise of teaching at the doctoral level.
- Have comprehensive knowledge of theoretical and practical literature in areas of specialization.
- Be skilled in the application of basic and advanced concepts in the areas of cardiology, musculoskeletal, and neuromuscular physical therapy.

Admission

The student is admitted to the study program leading to the Ph.D. degree on the basis of his general achievements on the GRE Aptitude Test. To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work undertaken. In addition, the GRE scores must be on file at The University of Iowa.

The applicant must complete the Graduate College application. The Admissions Office evaluates application materials to ensure that the minimum Graduate College standards are met. The application, including test scores and copies of transcripts, is then sent to the department for review.

Deadlines for the completed written applications are October 15 (notification by December 15), March 15 (notification May 15), and May 15 (notification July 15).
Physician Assistant Program

Director: Denis Oliver
Medical Director: Douglas W. Lauer
Associate Program Directors: Douglas W. Lauer, Denis Oliver
Associate: Patricia A. Martin
Address: Health Care Center, Suite 300
Degree offered: M.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 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 Certification Examination for Primary Care Physician Assistants. Successful completion of the certifying examination is a prerequisite for registration as a physician assistant in Iowa.

The Physician Assistant Program at The University of Iowa emphasizes the practice of general medicine in settings designed to foster the development of health care teams. Extensive clinical training is provided in affiliated hospital and office-based practices in a range of primary care medical specialties, including family medicine, internal medicine, and pediatrics. Additional rotations in medical and surgical specialties and subspecialties are available and qualify the graduate for employment in many health care areas.

Professional Program

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at The University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state in primary care settings.

The two-year educational program is divided into three broad phases.

The initial didactic phase consists of seven months of course work in a number of basic science areas, including anatomy, biochemistry, clinical pathology, microbiology, pathology, pharmacology, and physiology 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 also is offered during this session.

The second phase is 50/121 Introduction to Clinical Medicine for Physician Assistant Students. This full semester course involves the application of basic science knowledge to the understanding of clinical-pathologic correlations of the common and catastrophic disorders encountered in the major disciplines of clinical 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 the third-year medical students.

The third clinical phase consists of supervised rotations of five, four, or six weeks duration in the second and third-year clinical 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 Veteran 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 relationships between various medical and health care professional students.

Professional Curriculum

First Year

Phase 1
71:125 Pharmacology for Health Sciences: Physician Assistant Students 6 h.s.
50:105 Law and Medicine for Physician Assistant Students 1 h.s.
60:111 Gross Human Anatomy for Physician Assistant Students 6 h.s.
61:12 Health Sciences Microbiology 4 h.s.
68:203 Introduction to Human Pathology 4 h.s.
69:203 Introduction to Human Pathology 4 h.s.

Phase II
50:121 Introduction to Clinical Medicine for Physician Assistant Students 20 h.s.

Second Year

Phase I
Required clinical rotations:
70:555 Pediatrics for Physician Assistant Students 5 h.s.
75:055 General Surgery for Physician Assistant Students 6 h.s.
78:555 Internal Medicine for Physician Assistant Students 6 h.s.
110:055 Family Practice I for Physician Assistant Students 6 h.s.
115:055 Family Practice II for Physician Assistant Students 6 h.s.
60:107 Obstetrics and Gynecology for Physician Assistant Students 6 h.s.
73:190 Psychiatry for Physician Assistant Students 4-6 h.s.
Elective clinical rotations, selected from the list:
76:102 Pediatrics Elective for Physician Assistant Students 2 h.s.
76:105 Emergency Room Elective for Physician Assistant Students 4 h.s.
76:103 Orthopedics Elective for Physician Assistant Students 2 h.s.
115:050 Family Practice Elective for Physician Assistant Students 2 h.s.
76:100 Internal Medicine Elective for Physician Assistant Students 4 h.s.
62:5 Dermatologie Elective for Physician Assistant Students 2 h.s.
64:110 Neurology Elective for Physician Assistant Students 2 h.s.
74:5 Radiology Elective for Physician Assistant Students 2 h.s.
75:110 Surgery Elective for Physician Assistant Students 2 h.s.
76:105 Rehabilitation Elective for Physician Assistant Students 2 h.s.
76:105 General Surgery Elective (Cardiology) for Physician Assistant Students 2 h.s.
79:129 Urology Elective for Physician Assistant Students 2 h.s.
Admission

To be eligible for admission to the Physician Assistant Program, the applicant must have completed at least 60 semester hours of college level study, including:

- College of Liberal Arts General Education Requirements in rhetoric, physical education skills, historical perspectives, humanities, quantitative or formal reasoning, foreign civilization and culture, and social sciences.

Complete introductory courses in inorganic and organic chemistry; and

A complete introductory course and at least one advanced course in biology or animal biology.

It is also strongly recommended, although not required, that the applicant’s background include analytic geometry, beginning calculus, and physics.

The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college course work undertaken. The admissions committee gives special attention to the applicant’s performance in science courses. In the past, the successful applicant has had a cumulative and science grade-point average of 3.1, a total of 125 semester hours of college credit of which 35 semester hours were in the sciences, and approximately one year of full-time or part-time health-related patient care experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience may be given priority consideration. Further, the committee resents interviews with the most qualified applicants.

Students are advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in the areas of biology, chemistry, or biochemistry. In this way, students who are not admitted to the Physician Assistant Program can pursue the baccalaureate.

Each new class begins the last week in May. Application forms must be received beginning one year in advance, and close January 15. Each applicant must complete the Physician Assistant Program application and submit at least three letters of recommendation.

Expenses

In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment, approximated by $250. Microscopes are not required.

Courses

117.06H Cooperative Education Pre-Physician Assistant Training Assignment 6 s.h.
117.1 Physician Assistant Clinical Second Year 3 s.h.
117.20 Cooperative Education Pre-Physician Assistant Assignment 6 s.h.
117.20 Introduction to Selected Health Professions 3 s.h.

Biochemistry

Acting head: Charles Svecnik

Professor: Arthur Arnesen, Roger Chadsey, Thomas W. Conway, John E. Donovan, George Kolodziej, Rex Montgomery, Wiliam A. Pedicri, Byron V. Papp, Arthur A. Spertus, Lewis D. Spector, Tariq Shorwag, Charles A. Svecnik

Professors emeriti: Charles V. Berg, Joseph L. Ficke, Gracevina Steinn, Carl S. Voelkel

Associate professors: Barry H. Gruneg, Gene F. Luss, Peter Rehakowski, Joseph A. Waider

Assistant professors: Alice R. Fulton, Brian G. Van Ness

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

Undergraduate Programs

See "Biochemistry" in the "College of Liberal Arts" section of the Catalog.

Graduate Programs

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue M.S.-M.D. or Ph.D-M.D. (medical scientist training) combined programs.

The focus of the graduate program is on the individual student, whose educational needs are met in formal course work and tutorial research experience that serve as the basis for selecting a thesis topic. First-year students take general and advanced biochemistry courses (usually 381.10, 381.13, 381.18, and 381.19) and a course of elective oral presentation (381.298 Seminar). Students spend about half of their time working in three different faculty biochemistry or related laboratories (381.281 Research Techniques), learning research techniques in the context of ongoing projects.

At the end of the first year students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. Students are required to complete a minimum of 6 s.m. hours of biochemistry and 6 seminar 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 candidacy, and concentrate on their thesis work. The program culminates in the completion of this work and its successful defense before the thesis committee.

In addition to meeting these and the general requirements of the Graduate College, students are expected to assist in the teaching of biochemistry for two or three sessions, as part of their training.

Throughout the program, students are associated with small seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

Research Interests

The Department’s current research interests include the study of protein structure and function, regulation of gene expression and recombination, mechanisms of protein biosynthesis, the role of the nucleus in the regulation of the DNA double helix, and the DRUP ULC gene, which is involved in the regulation of RNA splicing.

Facilities

Biochemistry occupies modern research quarters in the Brown Science Building, as do the departments of Anatomy, Microbiology, Pathology and Physiology. The Departments of Biological Science, Physics and Physics Research and teaching facilities for the Department of Biochemistry are located on a single floor.

The building houses important research facilities and equipment: cell biology, biophysics, and recombinant DNA technology, the latter of which is used to study the genetics of prokaryotes and eukaryotes. The facility also includes a 64-channel mass spectrometer, a DNA Synthesizer 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, common-use areas, preparation rooms, and a locker room.
Biochemistry/Medicine
Dermatology

Head: John S. Strauss
Professors: Richard M. Capron, Donald T. Donohue, John S. Strauss
Associate professors: Thomas L. Ray, Donald A. Albarran, Jr.

The Department of Dermatology instructs medical students and prepares dermatology residents in the care of patients with skin disease, and provides opportunities for their development of research skills in the field of dermatology.

This is one of the few dermatology programs in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about ten one-hour lectures. A good cross-section of patients is available, due to the mixture of private and clinic patients, including a large number referred from the Student Health Services. Additional patients are seen at the nearby Veterans Administration Medical Center.

Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research, and special studies.

Courses

40.1 Clinical Dermatology

Basic dermatology for third-year medical students, lectures, independent study material, clinical experience.

40.2 Dermatology Electives

Fourth-year medical students spend one week in advanced clinical experience, dermatologic surgery, and special electives.

Family Practice

Director: Rose Ann Spiry
Internship director: Suzanne Davis-Keevy

The University of Iowa Hospitals and Clinics offers a dermatology internship program that qualifies graduates to take the American Dermatological Association (ADA) registration examination. The program is fully accredited by the ADA. Clinical dietitians and food service system managers of The University of Iowa Hospitals and Clinics Dietary Department provide the clinical teaching for the program. Courses in the program are administered by The University of Iowa College of Medicine. The following courses are required:

50.203-50.204 Dermatology Seminar 2 s.h.
50.203-50.204 Clinical Lectures 4 s.h.
50.205-50.206 Projects in Dermatology 2 s.h.
50.209-50.210 Hospital Dietetiology Administration 2 s.h.

These are recommended for electives:

50.207-50.208 Dietetic Research 2 s.h.
50.216 Analysis of Food Service Systems 2 s.h.

Students generally complete the program with 17 semester hours of graduate credit. The University of Iowa Hospitals and Clinics awards a certificate to graduates of the program. Credit earned in the program may be applied toward an advanced degree. Approximately half of the graduates of the program do go on to complete additional degree programs, most typically the master's degree in home economics, preventive medicine, health education, or business administration.

American Dermatological Association and the University of Iowa College require for admission to the program that the graduate include the bachelor's degree with a strong background in food nutrition, food service management, and basic sciences. Students must enter the program in the fall semester. The postmark deadline for applications is November 1. The University of Iowa Hospitals and Clinics pays an internship stipend which partially covers educational and living expenses.

For descriptions of program courses, see the "Medical Humanities" sections in the listing of the Cutting.
Programs

Master of Arts

The master’s degree in hospital and health administration requires two years of full-time study. The curriculum is designed to develop the knowledge, attitudes, and skills needed to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, government 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 I**
- **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**
- **80:206 Accounting and Health Administration**
- **80:212 Health Economics I**
- **80:213 Health Economics II**
- **80:214 Financial Management of Health Institutions I**
- **80:215 Financial Management of Health Institutions II**
- **80:216 Quantitative Methods in Health Administration I**
- **80:217 Quantitative Methods in Health Administration II**
- **80:218 Health Information Systems**
- **80:219 Health Care Marketing Research Methods**
- **80:220 Legal Aspects of Health and Medical Care**

Students are encouraged to enroll in courses offered by the college 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. An oral thesis examination is recommended for students intending to pursue doctoral studies.

Five-Year Program

The University of Iowa is the only institution in the nation that offers a five-year program in hospital and health administration. This option, which was launched with a grant from the W.C. Kappe Foundation, enables students to complete their baccalaureate and master's degrees in five years rather than the usual six.

To be eligible for admission to this program, students must complete all required courses 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 at the end of their junior year. Students are then admitted formally to The University of Iowa Graduate College. The mandatory program includes advanced work and completion of the second year of study.

Because students are required to complete general graduation requirements and the prerequisites of the program prior to admission, and the university does not grant credit for the baccalaureate degree or the prerequisites of the program prior to admission, it is advisable to express interest in the freshman 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 offered with the College of Business Administration (M.B.A.) and the Department of Urban and Regional Planning (M.A.). Other alternatives may be established on an individual basis.

Students interested in a joint program should discuss their plans with both academic units and indicate their interest when submitting applican materials.
Fellowships 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 period of observing, developing, and exercising practical management skills. The program takes an active role in identifying interested students to identify and secure fellowship and residency positions.

Doctor of Philosophy

The Iowa Graduate Program in Hospital and Health Administration inaugurated the nation's first doctoral program in hospital and health administration. The Ph.D. requires completion of a minimum of 90 graduate semester hours, comprehensive examinations, and a dissertation. Doctoral candidates prepare 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
80:551 Medical Care Programs
80:552 Seminar: Health Systems Management
80:205 Seminar in Contemporary Health Issues I
80:206 Seminar in Contemporary Health Issues II

Research Methodology
80:261 Health Services Research I
80:262 Health Services Research II
80:263 Independent Research Project

Advanced Statistical Techniques
79:241 Intermediate Statistical Methods
79:242 Correlation and Regression
79:246 Design of Experiments
80:205 Application of Multivariate Statistical Methods

Econometrics
6E:103 Statistical Methods in Econometrics
6E:221 Econometrics I
6E:222 Econometrics II

Elective
Sociology
34:131 Elementary Statistics and Data Analysis
34:210 Intermediate Statistics and Data Analysis
80:205 Application of Multivariate Statistical Methods

Minor

The student must complete a 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 1963, is an interdisciplinary unit at the University of Iowa for research on health and health care. With the coordination and support of the CHSR, faculty and staff from colleges and departments across the University investigate the organization, delivery, efficacy, and financing of health care services. CHSR interests embrace a broad spectrum of perspectives and disciplines, including economics, geography, organizational behavior, psychology, operations research, sociology, government, medicine and environmental and clinical medicine. Through its research activities the center promotes links among health organizations throughout the Midwest. CHSR also supports 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.

Master's and doctoral students from the program are encouraged to become involved in the center's projects and activities.

Veterans Administration Health Services Research and Development Field Program

Program faculty and students also are active in research activities at the Veterans Administration Health Services Research and Development Field Program.

Alumni Association

As active Alumni Association supports the program in a number of important ways, including consultation and fund development. Of particular interest to study in the association is the association's function as a network for new entrants into the profession. Students are encouraged to develop relationships with alumni who serve as adjunct instructors, guest speakers, and as preceptors for residencies and fellowships. Each fall the program sponsors the Executive Symposium, an educational session for several hundred health care executives featuring presentations by leaders in the health care field. During the two-day symposium students have the opportunity to network and speak with practitioners from across the nation.

Admission

Applicants to the master's program are required to hold a baccalaureate degree (except for early admission program applicants). A 2:0 grade-point average on a four-point scale is desirable. Combined GRE verbal and quantitative scores above 1000 are preferred. Preprerequisites include one course in accounting and one in management. Courses in behavioral, economics, and statistics are strongly recommended. Campus visits are encouraged and personal interviews usually are required prior to admission.

Financial Aid

The program attempts to provide financial aid to all students who request it. Accordingly, a number of part-time research assistantships that provide a stipend and in-state tuition rates for out-of-state students are awarded each semester. Questions regarding financial aid should be directed to both the program and the Office of Student Financial Aid.

Courses

80:201 Introduction to Health Care Organization
80:202 Health Services Management of Health Care Organizations in the United States: Analysis of social, public, and private, physician, and economic factors that shape health care services: Determinants of health: economic, social, and cultural influences on health care services.
80:203 Health Services Administration I
80:204 Health Services Administration II
80:205 Application of Multivariate Statistical Methods
80:206 Seminar in Contemporary Health Issues I

Elective
Sociology
34:131 Elementary Statistics and Data Analysis
34:210 Intermediate Statistics and Data Analysis
80:205 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.

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80:201 Introduction to Health Care Organization
80:202 Health Services Management of Health Care Organizations in the United States: Analysis of social, public, and private, physician, and economic factors that shape health care services: Determinants of health: economic, social, and cultural influences on health care services.
80:203 Health Services Administration I
80:204 Health Services Administration II
80:205 Application of Multivariate Statistical Methods
80:206 Seminar in Contemporary Health Issues I

Elective
Sociology
34:131 Elementary Statistics and Data Analysis
34:210 Intermediate Statistics and Data Analysis
80:205 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.
Courses
45.281 Nutrition Seminar 3 h.b.
45.282 Nutrition Seminar 3 h.b.
45.283 Clinical Nutrition 3 h.b.
45.284 Clinical Nutrition 3 h.b.
45.285 Projects in Nutrition 3 h.b.
45.286 Nutrition Research 3 h.b.
45.287 Nutrition Research 3 h.b.
45.288 Nutrition Research 3 h.b.

Internal Medicine
Head: Francis M. O'Connell
Professors: Eugene M. Albee, Mark A.
Aronson, Robert F. Ahrens, Robert S. Bar, 
George N. Behforoul, C. Patrick Bres, James
Chapman, Robert A. Clark, James A. Clifton, 
Richard L. Dierberg, Gerald D'Onofrio, John W. 
Judkins, Andrea Frith, Donald Higginson, Brian A. 
Hobbs, Gary W. Horsen, John E. Kolar, 
Richard B. Kritchevsky, Michel L. Marcus, Alyce L. 
Maiz, Hal R. Phillips, Harold P. Schiff, 
Phillip M. Sch Szark, Ian M. Smith, Raymond Spector, John M. 
Stahls. Robert M. Wexler, Ernest O. Whel, 
Robert A. Wexler, Donald C. Zandis

Professors emeriti: William J. Bean, Richard D. 
Edwards, Robert C. Hartford, Lewis G. January, Paul 
Sifley, William M. Span.

Associate professors: John T. Donaldson, 
Donald E. Fairbanks, Robert B. Fackler, 
Robert E. Field, Robert E. Gelder, Robert S. 
Gibson, Barry G. Graebner, Nancy S. Glaser, 
Charles M. Holmes, Laurense G. A. Vander, 
Michael Kinneaf, Douglas G. Linnmacher, 
William J. Latorre, Vin Scali, Steven R. 
Marback, Deborah M. Mathers, Martin C. 
McKendrick, John M. Oster, Vincent W. 
Ostof, Michael J. Paeper, Philip J. 
Darlberg, James E. Clannon, Ralph M. 
Krohe, Robert C. Lay, John M. Ladock, 
Laverne M. Leck, Kenneth J. Newcome, 
Edward R. Wang, Thomas L. Zehabran

The Department of Internal Medicine is concerned with the diagnosis, prevention, and treatment of diseases of adults. The educational, patient-care, and research activities of the department cover all facets of internal medicine, including general internal medicine and primary care as well as the specialized areas of allergy-immunology, cardiology, clinical pharmacology, oncology, endocrinology, pulmonary medicine, gastroenterology, hematology, infectious diseases, renal and hypertension disease, and rheumatology. The department is organized into divisions.

Members of the department bear a major share of the teaching of essential medical skills, the introduction to Clinical Medicine, in which students begin using the principles of medicine, disease, symptoms, complications, prevention, and treatment of disease. Students are taught to gain historical, perform physical examination, and use rational approach to diagnosis and treatment.

In the third year students are assigned for nine weeks to medical services at the University of Iowa Hospitals and Clinics, Veterans Administration Medical Center. Under the guidance of the Department of Internal Medicine house staff and faculty members, they actively participate in members of the ward team in diagnosis and treatment. In the fourth year students may select a clinical specialty for the last year. These rotations include courses offered in general medicine and the specialties.

Graduate Program
The department offers straight-streams and an approved residency program of high quality. In addition, most of the department's specialty divisions offer clinical fellowships and post-doctoral fellowships for periods of two to three years. These permit
Medical Scientific Training Program

Director: Robert E. Felses (Physiology and Biochemistry)
Associate director: William Johnson (Microbiology)
Associate director for clinical studies: John A. Schiedermayer

The Iowa Medical Scientific Training Program is designed to prepare highly qualified individuals for careers in academic medicine with emphasis on preclinical and clinical research. To accomplish this, the program provides a research-eficient integration of graduate education and doctoral research with the full complement of clinical studies necessary for the medical degree. With few exceptions, the requirements for the combined M.D. and Ph.D. degrees can be completed in seven years of continuous study.

In the first two years of the program, the students are enrolled in the College of Medicine for the basic science and introductory clinical portions of the curriculum. In the third semester, the basic science curriculum continues with a broad exposure to both the biological and clinical sciences, which sets the foundation for all subsequent medical training. In the first semester, students take courses in biochemistry, pharmacology, anatomy, physiology, genetics, and microbiology. In the second semester, they take courses in anatomy, physiology, cell biology, and general pathology. The first semester of the second year is devoted to the study of pharmacology, and the second semester to the study of surgery. This year includes a research project in a surgical division, a medical student year in the first semester, and a research project in the second semester. Medical students are encouraged to participate in graduate research projects, and medical students are encouraged to participate in graduate research projects.

Financial Aid

Trainees admitted to the first year of the program compete for stipend and full tuition awards provided by the Medical Scientific Training Program grant to the University of Iowa from the National Institutes of Health (NIH). Support from this grant and institutional sources is continued for up to six years, provided the trainee's achievement and progress remain satisfactory. NIH stipends are supplemented during the graduate phase of the program. Trainees admitted without NIH awards are eligible for equivalent equal-time training awards beginning at the end of the second year of the program and continuing for four years. Support for trainees admitted to this advanced standing in the program is arranged on an individual basis.

Admission

Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa. Trainees are expected to have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, applicants should demonstrate psychological readiness for and proficiency in medical school training program.

By January 1, the Graduate College requires that the student has obtained at least a Bachelor of Science degree from an accredited institution. The student must complete a minimum of 120 semester hours of college-level work, including at least 90 semester hours of course work in the sciences.

Trainees are required to maintain a minimum grade point average of 3.0 on a 4.0 scale. Applicants must also demonstrate the ability to pursue graduate study and clinical training in academic medicine.

Trainees are required to demonstrate the ability to pursue graduate study and clinical training in academic medicine.
Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog

Microbiology

Head: Irving P. Glimcher


Associate professors: Steven Crav, Charles J. Cox, Charles White (Pediatrics), Janet R. Walker, Michael A. Albert (Pathology), Lacy Duker

Degree 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, microbiological physiology, clinical mycology, and viral 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 may obtain a M.S. degree during their graduate work, or proceed directly toward the Ph.D. degree.

All students admitted as candidates for advanced degrees are expected to assist in departmental training.

Incoming students choose a research advisor who serves as chair of the student's advisory committee. This 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 department (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 committee. A thesis based on the student's own research is required. The thesis must be defended satisfactorily in an oral examination.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of the subdisciplines (of the seven subdisciplines available in microbiology) in 15 semester hours of course work in two different areas. Students may substitute a course taken previously (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 Rawson Science Building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology. Laboratory space and modern equipment are available for teaching and research.

Admission

Prospective graduate students should consult the same admission requirements of the Graduate College. Departmental requirements include a review and personal interview by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (inorganic, organic, quantitative analysis), mathematics (up to Calculus), and physics. Students admitted without the above course work must take it during the first year of graduate school. The student should have a grade-point average of 2.7 or better to be admitted to the graduate program in microbiology.

Certain specified curricula, such as the Microbiology Training Program, are intended for advanced students who have admission standards higher than those described above. Only applicants with a grade-point average of 3.0 or higher are considered for these programs, and it is preferable for the applicant to have completed several years of post-baccalaureate training before applying. The course of study leading to the Ph.D. in microbiology with emphasis in biotechnology also may differ somewhat from that of the other subdisciplines. Inquiries may be made to the program or departmental chair.

Courses

61000 Cooperative Education Internship 0-4 s.h.
61100 Medical Microbiology 4 s.h.
Principles and method essential to study of microorganisms. Botanical classification and identification of microorganisms based on selected diseases caused by them. Introduction to the College of Medicine or consent of course director.
61110 Clinical Microbiology 3 s.h.
Introduction to clinical microbiology covering methods for isolation and identification of bacteria, mycobacteria, and fungi, as well as to their role in clinical medicine, epidemiology, and public health. Consent of instructor.
61147 Survey of Immunology 3 s.h.
Basic immunological concepts in development and function of the immune system and their application in clinical problems. Preparation of the student to enter specialized training in immunology or the practice of medicine. Consent of instructor.
61157 General Microbiology 3 s.h.
Introduction to the study of microorganisms, with emphasis on their role in cell structure and function, nutrition, metabolism, and control mechanisms. Conservation of the environment and the role of microorganisms in biogeochemical cycles. Consent of instructor.
61158 Pathogenic Bacteriology 4 s.h.
Structure and function of pathogenic bacteria, with emphasis on mechanisms of pathogenesis and laboratory methods used for isolation and identification of selected laboratory and clinical isolates. Consent of instructor.
61160 Medical Microbiology 3 s.h.
Structure and function of microorganisms essential to cell repair, biosynthesis, and control mechanisms. Consent of instructor.
61161 Medical Genetics 3 s.h.
Study of medical genetics and its relation to the medical sciences. Consent of instructor.
61181 Problems in Microbiology 1-3 s.h.
Readings and discussions on advanced studies of a special nature not offered elsewhere. Consent of instructor.
61182 Seminar in Microbiology 3 s.h.
Current topics in microbiology and immunology. Can be taken twice for credit with change in the topics covered by undergraduate students, and only once for credit by graduate students. Consent of instructor. Prerequisite: 61177 with a grade of 'C' or above and consent of instructor.
61184 Microbiology 3 s.h.
Open to credit and in laboratory forums.
61185 Clinical Laboratory Microbiology 3 s.h.
Principles and practice of clinical and teaching techniques with special emphasis in microorganisms affecting man. Consent of instructor.
61186 Clinical Laboratory Virology 3 s.h.
Principles of virology and selected aspects of biochemical and immunologic techniques. Consent of instructor.
61187 Clinical Laboratory Immunology 3 s.h.
Fundamental and practical training in the isolation and identification of bacteria and fungi from clinical materials essential to the study of human pathology. Consent of instructor.
Neurology

Arriving head: Robert L. Rudolphs

Professors: Harold P. Adams, Jr., William E. Bell (Pediatrics), Antonio Damasio, James J. Corbett, Selma Dayan, Richard Frischman, Jan Eikema, Ramon Rin, Robert Revzin, Gary Van Hees (Neurology), Richard Straus (Psychology), Susan Tasker (Psychology), Harris Yaden (Psychology), James P. Weil (Pediatrics), J. Rudy E. White (Psychology), Michael J. Wise (Pediatrics), Richard S. Wise (Psychology), David J. Wise (Psychology), and John R. Wise (Psychology).

Neurology

The department offers clinical and research training in third- and fourth-year medical students, contributing to the education of the medical student and the training of junior faculty. The department also offers research opportunities in behavioral neurology to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the faculty center on behavioral neurology, electrophysiological correlates of central nervous system function, growth factors in the nervous system, central and peripheral autonomic functions, parasympathetic, cardiovascular, glutamate, neuro-ophthalmology, and movement disorders.

Courses

645 Clinical Neurology

Neurology for medical students in small groups.

6450 Neurology Center for Physicians

1604 Elective in Neuro-Ophthalmology

6485 Principles of Neurology and Clinical Sciences

6490 Geriatric Medicine

6492 Introduction to Behavioral Neurology

6495 Introductory Behavioral Neuronal Assessment

6499 Special Studies off Campus

Neurology

Chad Robert E. Feltome

(Speech Pathology and Audiology), Nancy C. Andersen (Psychology), Barrie R. Brachman (Pharmacology), Michael J. Braddy (Pharmacology), Elizabeth M. Burns
## Admission

Individuals who want information about predoctoral and postdoctoral training opportunities in the neuroscience should contact the program office for application materials at the following address:

Neuroscience Program Office, 5-466 Bowen Science Building, The University of Iowa, Iowa City, IA 52242.

## Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>122/224</td>
<td>Neuroscience I</td>
<td>4.00c</td>
</tr>
<tr>
<td>122/225</td>
<td>Neuroscience II</td>
<td>4.00c</td>
</tr>
<tr>
<td>122/226</td>
<td>Neuroscience III</td>
<td>4.00c</td>
</tr>
<tr>
<td>122/227</td>
<td>Neuroscience IV</td>
<td>4.00c</td>
</tr>
</tbody>
</table>

## Graduate Program

### Neurobehavioral Sciences

- **Background Courses**
  - Students are expected to complete at least 3 semester hours in each of the following fields: behavior, biophysics, cell biology, and statistics. As necessary, these requirements may be fulfilled by an approved combination of courses.
- **Neuroscience Courses**
  - Six required courses form the core of the neuroscience graduate curriculum. These are 122/224, 122/225, 122/226, 122/227, 122/228, and 122/229.
  - In addition, students register for research credit (122/225) 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, and physiology.
- **Financial Aid**
  - Graduate students in the Neuroscience Program receive assistantships and tuition support from institutional and extramural sources, including a cellular neurotoxicology training grant from the National Institutes of Health.

## Facilities

- **Training**
  - Training is conducted primarily in the laboratories and teaching facilities of the graduate departments of anatomy, biology, biochemistry, pharmacology, physiology, psychology, and speech pathology and audiology, and the clinical departments of neurology and psychiatry.
  - Faculty laboratory and clinical research facilities are available to students who are interested in graduate studies in neuroanatomy and neurochemistry.

## Obstetrics and Gynecology

- **Objective**
  - To provide educational services to the students in the Obstetrics and Gynecology Department.

## Requirements

- **Background Courses**
  - Students are expected to complete at least 3 semester hours in each of the following fields: behavior, biophysics, cell biology, and statistics. As necessary, these requirements may be fulfilled by an approved combination of courses.

## Degree Options

- **Ph.D.**

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*Naming, P. Michael Coss (Pharmacology), William E. Cooper (Psychology), Joe D. Custer (Anatomy), Antonius Emaus (Neurology), Donna Dionisio (Pharmacology), Gary B. Dukas (Neurology), Robert E. Feinberg (Physiology and Biophysics), Gerald F. Giedraitis (Pharmacology), Peter A. Getting (Physiology and Biophysics), Saty V. Gokhale (Exercise Science and Physical Education in Physiology and Biophysics), Gideon Gomberg (Psychology), Michael N. Hart (Pathology), John A. Harvey (Neurology), Donald D. Heidel (Mental Medicine), and Kirtt Herrenknecht (Pharmacology)*

*Yeung V. Heng (Psychology), Richard R. Hsing (Speech Pathology and Audiology), Alan Kin Johnson (Psychology), Stanley B. Kates (Biologic), Jerry L. Kallos (Biology), Raman L. Kakkar (Neurology), John P. Lang (Pharmacology), Yirch S. Lachter (Speech Pathology and Audiology), Philip G. Scimia (Internal Medicine), Eugene Spina (Biologic), and Stephen W. Thomas (Pharmacology)*

*Medicine, Pharmacology, Barbara A. Hay (Biologic), Gary R. Von Malott (Anatomy), Theresa H. Williams (Anatomy), George Winfield (Physiology)*

*Advisory professors: Robert J. Barry (Computer Science), Jeffrey L. Davis (Biology), Jean Y. Fox (Neurology), Ronald W. Jordan (Physiology and Biophysics), Kirby Stalder-Rasch (Anatomy), Nicholson J. Pantazis (Anatomy), Alan Randolph (Psychology), William J. Redd (Pediatrics), William T. Telesman (Neurology), Raif Wasi (Physiology), James R. Wettlaufer (Anatomy), and Chun-Pang Wu (Biologic)*

*Advisory professors: Issac C. Brown (Exercise Science and Physical Education), Robert B. Felder (Internal Medicine), Ross D. Feldman (Internal Medicine), Leonard J. Haddad (Physiology and Biophysics), Carl Kukula (Physical Therapy), Michael J. O’Donnell (Physiology and Biophysics), Stanley Peinar (Pediatrics), Robert L. Scharpf (Pathology)*

*Degree offered: Ph.D.*

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Programs

Clinical Program

Trainees enter this program directly from medical school through the National Internship Matching Plan. 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, anesthesia, and other services.

During the following four years residents gain experience in trauma, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, prosthodontics and orthotics, rheumatology, and basic science as related to orthopaedics. The residents also specialize in anatomy, bone biology, 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 devotes 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, or 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 mesenchymal cells and collagen, both normal and those altered in epiphyseal dysplasias and scoliosis.

Biomechanics—In conjunction with the College of Engineering, biomechanical problems of the upper extremity, biomechanics of the spine, hip, and gait, and total joint replacements.

Cell biology and pathology—Ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.

Tissue transplant, radiopaque injectate, and metabolic bone disease, with bone, joint, and ligament transplantation. Metabolic physiology, qualitative and quantitative aspects of histology, general composition and tissue density, effect of isovio and its vitr metabolite base disease, and exercise.

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 library, a specialty endoscopy unit, and physical therapy facilities.

Physicians in the outpatient clinic see approximately 125 patients per day.

Specialty clinics deal with such problems as arthritis, club feet, congenital dislocation of the hip, neuromuscular disease, metabolic disease, nerves, back, amputation, hip, knees, hands, meniscus, 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 hospital schools for the mentally retarded.

Courses

76:2 Clinical Orthopaedic

76:12 Orthopaedic Medicine for Physicians Assistant Students

76:12 Orthopaedic Electives for Physicians Assistant Students

76:201 Advanced Clinical Orthopaedics

Option A or option C end study.

76:206 Microsurgical Procedure

Open only to senior medical students.

76:206 Surgical Care of the Hand

Open only to senior medical students.

76:998 Special Studies on Canine

Open only to senior medical students.

76:999 Special Studies on Canine

Open only to senior medical students.

Otolaryngology—Head and Neck Surgery

Head: Brian F. McCabe

Associate professors: Bruce J. Gortzi, Richard S. Tyler

Assistant professor: Joseph D. Smith

Research activities: Churing B. Leung, Jerald R. Moore, Nancy S. Glaab

Clinical associate professors: Thomas J. Bennett, Carl E. Frits, Guy N. McFarland

Clinical assistant professor: Peter L. Alt

Degree offered: M.D.

The department provides one of the oldest and largest 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 dentistry (orthodontics and prosthodontics).

The department's main objective is to provide a high-level instructional program in otolaryngology and head and neck surgery for medical students and residents. To maintain a teaching prograss, the department and faculty staff carry a large patient load in head and neck oncology, head and neck plastic reconstructive surgery, facial trauma, cranial-base and congenital defects (such as cleft lip and palate), neurotology, pediatric and genitourinary, hearing problems, voice problems, parotidectomy, surgery for phobias (including corneal implants), and all the areas usually considered otolaryngology.

There are eight divisions in the department that make this program comprehensive: otology and neurotology, plastic and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, ophthalmology, pediatric otolaryngology, oto-rhino-laryngology, and radiology, and research.

Another major objective 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 senior 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 the program of study. In addition, there are several large-scale research programs within the department in vestibular neurophysiology, eardrum and other cranial nerve disorders, external and internal ear morphologic, cochlear implants, neurosurgery, audiology, deafness, speech and communication, cochlear implants, microvascular reconstructive surgery, anatomy of the temporal bone, neurophysiology, auditory, bone resonance in ear disease, and otoneurophysiology of the inner ear, and psychoneurophysiology.

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 American Board of Otolaryngology.

The program consists of a four-year course of basic and clinical science. The basic science lectures and laboratory audits are conducted during the first three and one-half months of residency.

After passing an oral and written examination, the student enters the clinical
phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of osteomyelitis and its related fields.

To complete the requirements for the Master of Science degree, the student must earn at least 30 semester hours of credit, consisting of which must come from the basic science group, and must present and defend a thesis. Students capable of additional work may take elective courses.

A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized college of medicine and each must have completed one year of general surgical training in an approved program.

Courses

[Courses listed with course numbers and titles]

Pathology

Head: Richard S. Lynch


Associate professors: Carol A. Alexander, Stanley B. Cline, Ronald D. Haid, James A. Gomii, Nancy Goyder, George F. Johnson, John D. Kemp, Philip W. Miller, John W. Smiley, Richard A. Puffer


Adjunct Associate: Robert J. Mohl

Adjunct Associate: D. M. H. L. Duley

Adjunct Associate: G. D. C. Armstrong, George A. Henry, Thomas J. Shostrom, Ray R. Williams

Degree offered:

The department offers basic pathology courses to health science students; a clinical training program in medical technology; a master's degree program; a residency training program leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and anesthesiology; a postdoctoral training program in clinical fellowship in pathology specialties; and postdoctoral research training in cellular and molecular pathology.

Programs

Clinical Education in Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog

Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, biology, zoology, and medical technology, and train students with medical and dental degrees.

The M.S. program is dynamic, but the department emphasizes two tracks, one to provide a research background for academically oriented resident physicians and dental and medical students, the other for medical technologists who wish to advance their training, usually by specializing in a narrow area of laboratory medicine.

M.S. students participate in teaching patient care, and research through the instructional programs of the department, the service laboratories of the University and The Iowa University Hospitals and Clinics, and faculty members' research laboratories.

Admission to the M.S. program requires a 3.0 grade-point average in science courses, a Graduate Record Examination (GRE) Aptitude Test combined verbal and quantitative score above 1050, and a personal interview. A brochure describing departmental course requirements and giving guidelines of the major academic tracks is available on request.

Residency Program

The department is approved for 21 residency positions in pathology, covering a rotation of up to three years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Medical Center.

There is systematic rotation through the various laboratory services, including surgical pathology, anatomy pathology, cytology, clinical biochemistry, medical microbiology, histology, immunology, and transfusion center. Opportunities are available for concentrated study in most pathology subdivisions.

The department also offers a postdoctoral training program in clinical biochemistry for biochemists and chemists. This program is approved by the American Board of Clinical Chemistry.

In addition, the department provides five 12-month fellowships and a variable number of advanced opportunities in areas of the areas of anatomic and clinical pathology.

Postdoctoral Training

The Department of Pathology offers a program in hematopathology for physicians who have completed at least two years of resident training in pathology. The postdoctoral teaching is of one
Fellowships are available in all of the AABP-approved subspecialties as well as in the major subdivisions of pediatrics. The programs are research and clinically oriented, encouraged development of knowledge and skill in the chosen discipline. Upon satisfactory completion of the program, fellows meet the eligibility requirements of the AABP in the subspecialty.

Facilities
The Department of Pediatrics is located in the University of Iowa Hospitals and Clinics, with inpatient and outpatient areas immediately adjacent to faculty offices and the pediatric library. The inpatient service comprises more than 100 beds, and more than 21,000 patients are seen each year in the general, specialty, and continuity care clinics. Laboratories performing both clinical and research studies are maintained in the department.
The University Hospital is available for the child with developmental disabilities, cerebral palsy, or mental retardation.

Graduate Program
The department offers an approved three-year residency program designed to prepare each trainee for a professional career in the broad field of pediatrics. The programs meets the eligibility requirements of the American Board of Pediatrics (ABP).

Courses
- **Pediatric Pharmacology**
- **Pediatric Nutrition**
- **Pediatric Neurology**
- **Pediatric Cardiology**
- **Pediatric Endocrinology**
- **Pediatric Gastroenterology**
- **Pediatric Hematology**
- **Pediatric Oncology**
- **Pediatric Infectious Diseases**
- **Pediatric Critical Care**
- **Pediatric Genetics**
- **Pediatric Psychiatry**
- **Pediatric Surgery**
- **Pediatric Emergency Medicine**
- **Pediatric Allergy and Immunology**
- **Pediatric Hospital Epidemiology**
- **Pediatric Ethics**
- **Pediatric Bioethics**
- **Pediatric Palliative Care**
- **Pediatric Public Health**
- **Pediatric Administrative Fellowship**
- **Pediatric Research Fellowship**
- **Pediatric Education Fellowship**
- **Pediatric Leadership Fellowship**
- **Pediatric Global Health Fellowship**
- **Pediatric Telemedicine Fellowship**

The above courses are designed to provide a comprehensive overview of the field of pediatrics and to prepare residents for successful careers in academic medicine.

Residents are expected to participate in grand rounds, case conferences, journal clubs, and other educational activities. They are also expected to complete a research project during their residency.

Residents are encouraged to participate in clinical research projects and to publish their findings in peer-reviewed journals. They are also encouraged to present their research at national and international conferences.

Residents are required to complete a minimum of 40 hours of community service per year. This includes participation in various community outreach programs, such as teaching at local schools, providing medical care at community health centers, and participating in volunteer activities.
physiology and Biophysics

head: richard s. abelson

professors: franklin m. abelson (internal medicine), bernard j. barondes, david m. barrows, carl v. gilbert (department of chemistry and chemical biology), ronald w. jaynes, richard a. nauer, david g. reynolds (surgery), byron a. schottelius, charles c. greene, g. edgar folt, jr., associate professor: marvin f. campbell, charles j. haupt, michael l. jennings, andrew v. karpel, paul r. kovacs, n. schiller, gordon w. scarle

assistant professors: susan m. dawson, auane l. gershen, lesley j. hollis, michael g. o'toole, jeffrey e. pease, thomas j. schmidt, erwin f. schneider, michel h. tohver

dergrees offered: m.s., ph.d.

the department of physiology and biophysics offers graduate programs leading to the doctor of philosophy degree; provides instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and other health professional students; participates in the medical training program in the college of medicine; and offers a program leading to the master of science degree.

graduate programs

the graduate programs in physiology and biophysics are designed to provide broad general knowledge of fundamental life processes at molecular, cellular and organ levels, as well as a major opportunity for intensive study in major areas of physiology and biophysics with emphasis on pharmacology, neurobiology, and neuroendocrinology. the program places strong emphasis on the development of modern research skills and their application in the conduct of original research investigations. the entering student is advised by the director of graduate studies, who provides personal counseling in the selection of a program of formal course work and an introduction to research activities of the graduate faculty. in addition to advanced courses in general physiology and biophysics, the department offers specialized courses in cardiovascular, endocrine, neural, exercise, membrane, and nuclear physiology. students may select to take courses in other departments appropriate to meeting their educational objectives.

upon completion of required course work and satisfactory performance on comprehensive examinations in physiology and related areas, the student is expected to devote full time to original research, culminating in the preparation of a doctoral dissertation, which is defended in a final oral examination.

all degree candidates are expected to have supervised experience as classroom assistants.
the knowledge and skills of medical and allied sciences are applied in an organized, 
community effort to maintain and improve the health of the public. The 
Departmental research and teaching activities are conducted within these 
primary divisions: biology, biochemistry, epidemiology, and occupational and 
environmental health. The division of biostatistics works closely with both 
clinical and basic science investigators throughout the health center 
in the initial design and subsequent 
analysis of research projects; they also 
work independently in studying problems of 
statistical theory. Conferences of the 
etiology faculty include health care 
organization and delivery, risk factors for 
disease in the general population, 
behavioral factors in disease, and 
the establishment and evaluation of 
disease control measures in the community. 
Occupational and environmental 
health faculty are concerned with factors in 
the physical environment that are related to 
disease. Of particular interest are the 
health problems of agricultural workers.

Examples of ongoing departmental 
resources and activities include: The State 
Health Registry of Iowa, which records 
clinical files in all counties in all 
cases of cancer that occur in residents of Iowa; the Aging 
Project, which examines health problems and 
needs of a representative segment of 
Iowa's elderly; the development, evaluation, 
and field testing of vaccine against 
aesthetic illness (malar fever); the University 
Older Adult Study Project; the 
Community Pesticide Project; and the 
Biostatistical Consulting Service. The 
department sponsored development of the 
Iowa Department of Health and 
Occupational Health, the first agency in the 
West that was specifically 
dedicated to the study of 
the occupational health problems of the 
agricultural worker.

All graduate programs are enhanced 
through affiliations with the University 
Hygienic Laboratory, the 
Environmental Health Service, the 
Graduate Program in 
Microbiology and 
Medical Microbiology, and the Health 
Services Research Center.

Graduate Programs
The master's program offers a degree with emphasis on environmental health, 
biometry, or community health. Admission to this community health track is limited to 
those who already are health professionals. The Ph.D. program is available with 
an emphasis in epidemiology, biology, 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 grades 
lower in departmental course work will be dismissed from the program.

A joint master's option exists between the Graduate Program in Urban and 
Regional Planning and Preventive Medicine and 
Environmental Health in the College of 
Medicine. This option results in an M.A. or 
as M.S. in Planning and an M.S. in 
Preventive Medicine, A.S. in 
Environmental Health. Separate admissions to both 
aademic units are required.

Institute of Agricultural Medicine 
and Occupational Health
The Institute of Agricultural Medicine 
and Occupational Health in the 
Agricultural Medicine Research Facility on the 
Outskirt Campus. Research, teaching, 
and extension activities concern the safety 
and health problems of Iowa industrial and 
agricultural workers. Areas of study include 
toxicology, environmental toxicology, comparative 
medicine, industrial hygiene, occupational 
medicine, the Accident Prevention 
Laboratory, and the Iowa Pesticides 
Epidemiology Studies Center.

Financial Aid
A limited number of research 
scholarships, 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-U.S.-Iowa students.

Minimum grade-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, all students must complete the 
TOEFL, Test of English Language 
(550 on computer-based tests or 110 on 
computer-based tests). The candidate 
shoulders of products. In the 
Departmental Seminar, 
Courses
45-900 Cooperative Education Internship 
4.0 h. Field experience in a public health 
environment.

45-940 Mass and the Environment 3.0 h. 
Human ecology in relation to industrial 
diseases, elements of physical, chemical, 
biological, and occupational 
assessments in the environment and health, 
literature on food and health, effects of 
problems on nature and man, 
environmental studies, and recent trends 
in environmental science. Offered in the 
Biological Sciences.

45-161 Dynamics of Health 3.0 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.

45-169 Preventive Medicine 3.0 h. 
Introduction to epidemiology. Preventive 
medicine, occupational health, and 
safety of health services, environmental health, and public health 
emergencies. Application of epidemiology to 
diseases control and prevention. Offered spring semester, with permission for 
additional years, to those who have completed a 
two-year medical internship. Offered fall semesters.

45-170 Biostatistics 3.0 h. 
Skills in reading and interpreting the 
medical literature are developed. 
Methods of statistical analysis in 
epidemiology and biostatistical 
and reliability in a scientific context, and 
application of methods to 
biostatistical situations. Offered fall 
semesters.

45-171 Immunochemistry 3.0 h. 
Characterization of serologic reactions 
and the design and development of 
immunoassays. Application of 
immunoassays to 
clinical diagnosis, and 
application of methods to 
medical research. Offered fall 
semesters.

45-172 Microbiology 3.0 h. 
Characterization of serologic reactions 
and the design and development of 
immunoassays. Application of 
immunoassays to 
clinical diagnosis, and 
application of methods to 
medical research. Offered fall 
semesters.

45-173 Principles of Epidemiology 3.0 h. 
Design and analysis of laboratory 
and clinical studies. 
Historical and current examples of disease 
along with 
epidemiologic studies using 
descriptive, analytic, and 
community-based designs. Offered fall semesters.

45-174 Design and Analysis of 
Experiments 3.0 h. 
Introduction to 
research methodology. 
Research design, sample size 
and method of 
statistical inference. 
Offered fall semesters.

45-175 Introduction to Biostatistics 3.0 h. 
Experiments and 
statistical data. 
Design, method of 
analysis, and 
interpretation of results. 
Offered fall semesters.

45-176 Introduction to the 
Design of 
Experiments 3.0 h. 
Techniques of 
statistical design. 
Experiments and 
statistical data. 
Design, method of 
analysis, and 
interpretation of results. 
Offered fall semesters.

45-177 Biostatistics and 
Biometrics 3.0 h. 
Introduction to 
biostatistics and 
biometric interpretation of 
experimental data. 
Basic concepts of 
probability, 
statistical significance, and 
null hypothesis. 
Offered fall semesters.

45-178 Environmental Health 3.0 h. 
The control and 
monitoring of 
environmental health. 
Factors influencing 
health, and the 
measurement of 
environmental factors. 
Offered fall semesters.

45-179 Environmental Health 3.0 h. 
The control and 
monitoring of 
environmental health. 
Factors influencing 
health, and the 
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environmental factors. 
Offered fall semesters.
experiences are available at The University of Iowa Hospitals and Clinics and at the Iowa City Veterans Administration Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Security Medical Facility at Ottumwa, 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 and behavioral neuroscience, neurochemistry, neurophysiology, and psychosocial aspects of behavior.

Many opportunities are available for students and residents to participate in research. The basic science areas of neuroscience, neurophysiology, and electrophysiology offer additional opportunities to students and residents for special study and research. The clinical areas of psychiatry, 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

73:148 Psychopharmacology for Physician Assistant Students

73:220 Research in Psychiatry

73:221 Program in Psychiatry

Courses Open Only to Medical Students

73:213 Clinical Practice

73:214 Clinical Practice

73:215 Introduction to Mental Health

73:222 Introduction to Medical Psychiatry

73:362 Advanced Psychiatry, Psychopharmacology Hospital

73:381 Hospital Psychiatry, Veterans Administration Hospital, Iowa City

79:221 Child Psychiatry, Psychiatric Hospital, Children’s Services

79:418 Emergency Psychiatry, Broadlawns Hospital, Des Moines

79:419 Correctional Psychiatry, Iowa Security Medical Facility, Ottumwa

79:588 Research Psychiatry

79:589 Psychiatric Epidemiology

Radiation Biology

Director: James W. Osborne
Professor: Frank Fan-Fu Cheng, Richard L. DeCovit, James E. Erdman, Gerald H. Hawley, Junior W. Osborne

Chairman: Edgar F. Riley, Jr.
Associate professors: Larry W. Obery, Reggie H. Stevens
Assistant professor: R. Craig O’Connell, M.D., Ph.D.

The program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the theory and widespread application of radioscience methodology. The program stresses the importance of these areas to scientific research, clinical medicine, and the general public.

Undergraduate Study

Two courses, 77:105 Introduction to Radiobiology and Radiophysics and 77:106 Environmental and Radiological Health Physics, are open to undergraduate students in liberal arts or professional colleges. 77:105 would be especially appropriate for those who want an overview of the uses of radiation in our society and the biological effects of radiation. These courses should also be of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Graduate Programs

The M.S. program in radiation biology emphasizes the technical aspects and serves well as a minor field for students whose major interest is in a related field. The Ph.D. program is open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. in this or a related field is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying. After completion of the introductory course, the student may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students elect to emphasize training in physical aspects, such as radiological physics or health physics and others in biological aspects. In either case, a broad base rather than complete specialization is the goal. In addition to formal lectures, the programs involve small group conferences and discussions. Laboratory exercises are emphasized, and the student has the opportunity to become familiar with many of the basic instruments and techniques. It is recommended that a candidate for the Ph.D. have a reading knowledge of scientific French or German competence in biological statistics or computer programming before taking the final examination. Students must have at least one semester of experience as a teaching assistant and at least one as a research assistant. No registration is required and no academic credit is given.

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 Argonne National Laboratory.

The Radiation Research Laboratory has a variety of radiation detectors and counters, including gamma and liquid scintillation counters and a small animal whole-body counter. The laboratory also has ultraviolet spectrophotometers, various types of equipment for chromatography and electrophoresis, an automatic cell counter and particle size, tissue culture facilities, and facilities for preparing histological sections of tissues—fixed or frozen—and autoradiographs.

Three air-conditioned rooms provide convenient housing for the small laboratory animals used in research and teaching.

Financial Aid

Graduate students are supported as research assistants when possible from funds available through research grants and contracts, or as teaching assistants from departmental funds. Some awards also are available to graduate students and postdoctoral students through the U.S.P.H.S. Research Service Award Program to support training in biomedical radiation research. Individual postdoctoral awards also are available to the individual supported by the candidate and his or her faculty sponsor.
Courses

7:1500 Introductory to Radiosurgery and Radiobiology 4 h.b. Characterization and biological effects of ionizing radiations, properties and uses of radiotracers, medical applications, biological bases for protection procedures. Often fall semester. T115.6, T115.7.

7:1500 Environmental and Radiological Health Physics 4 h.b. Radiologic hazards; control regulation, problems of design and use of radiation facilities in research, academic, and industrial environments. Safety and injury prevention. Biologic effects of radiation exposure. Radiation detection and instrumentation. Often fall semester of odd years. Prerequisite: T116.1. Credit may not be taken for both T115.7 and T115.1.

7:15 Special Topics 4 h.b. Undergraduate For undergraduate participants interested in a career in the radiation sciences, including radiation safety, radon and its impact, diagnostic radiology, or nuclear medicine. Often fall semester. Prerequisite: T115.1. Open only to medical student radiology residents.

7:15 Seminar: Radiation Research 4 h.b. Seminar research reports for students and faculty and by speakers from outside the program. Often fall semester. Prerequisite: T115.1. Open only to satisfactory-semester basis. Not open to all students.

7:15 Seminar: Radiological Research 4 h.b. Seminar research reports on student research and by speakers invited and by students who have done the program. Often fall semester. Prerequisite: T115.1.
exercises interspersed with operating room experience. Lectures and conferences are scheduled regularly on specific topics. Special courses is selected topics of surgical pathology and problems of severe burns, organ transplantation, surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric surgery and plastic surgery. The thoracic surgical and neurological surgeons have particular expertise in clinical management of the spectrum of diseases in their specialties.

Facilities
The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit in the state, providing adequate patient material for both clinical and basic science research.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal surgery, tissue culture, gastroenterology, surgical research, pediatric surgery, transplantation, otolaryngology, cardiac surgery, and neurosurgery and oncolgy.

Courses
75.1 Basic Emergency Skills Seminar/lecture: patient care in emergency medical techniques; emphasis on practical exercises and applications.
75.2 Vascular Research Seminar/lecture: vascular research.
75.6 Surgical Internship Seminar/lecture: intern in surgery.
75.100 Emergency Room Office for Physician Assistant Students Seminar: office for physician assistant.
75.101 Surgery Center for Physician Assistant Seminar: surgery center for physician assistant.
75.206 Advanced Clinical Surgery Seminar/lecture: advanced clinical surgery.
75.221 Emergency Room Office On Campus Seminar/lecture: emergency room office on campus.
75.223 Surgical Oncology Seminar: surgical oncology.
75.224 Emergency Room Office On Campus Seminar/lecture: emergency room office on campus.

The Department of Urology in The University of Iowa College of Medicine offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care.

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79:336 Urological Oncology
3 cr.
Exposure to clinical experiences in diagnosis and management of atomic and pelvic malignancies. Participation in the department's current research projects is encouraged. Collateral duties include clerical or secretarial work or related preparation or research as a laboratory assistant.

79:334 Male Endocrinology and Reproduction
3 cr.
Exposure with clinical experience in male endocrinology, including semen analysis, sperm motility tests, and hormonal determinations. Assists with and/or performs an andrology consultation service. Prepares and maintains quality assurance and management of clinical performance testing.

79:317 Clinical Endoscopy in Urology
4 cr.
Clinical experience in the use of endoscopes in the management of urological disease. The emphasis is on the endoscopic examination of the urinary system.

79:999 Special Studies off-Campus
Individual projects or clinical projects conducted by the student, faculty representative, or departmental member. Requests for such projects must be in writing and approved by the chair of the department. The project must be completed under the supervision of a faculty member.

Bowen Science Building
College of Nursing

Dean: Geraldine Fison
Assistant dean: Myra A. A. DeBakey
Assistant dean, undergraduate studies and community affairs: Eleanor McCallum
Assistant dean, clinical programs: Judy Mathis
Programs: Baccalaureate programs; Nursing Education: Medical Health Services: Nursing Research and Development and Utilization: Elizabeth R. Roza
Professors: Barbara F. Murphy, Patricia B. Blee, Elizabeth Bree, Geraldine Fazekas, Judy Mathis, Rosemary McEldureen, Tina Tipton, Barbara Thorne
Profsessors emeritus: Eva Erickson, Hope Salvesen
Associate professors: Kathleen H. Rockwell, Todd C. Cheo, Martha Hook, Mary P. Donahue, Anna J. Jones, Maria P. Frank, Ana F. Freilich, Mildred Frei, Rose Marie Freinetic, Laura Hart, Leslie Menard, Eleanor McCallum, Joanne McDonald, Susan Powell, Joan Stenz, Elizabeth Beaumon
Associate professor emeritus: Daddy Bres, Geraldine Ruzicka, Mary Jane Goudey, Nancy Antkowiak, Mary Jane Lyden, Anne E. Overland, Ernie H. Heinecke
Assistant professors: Gloria Rubenbush, Marcie L. E. columnist, Martin C. Clark, Richard D. Clark, Mary Norton, Linda Ruben, Martha Antkowiak, Kathleen Galley, Laverne Repasi, Robert W. Kremer, Jean Lalone, Soji A. Lamy, Meridian Haug, Frances Mide, Laverne Ruben, Beverly Sizemore, Averett Schnell, Mary H. Lindsey, June Yang
Assistant professor emeritus: Joette Aune, Mary Rock, Paul Zemlicka
Instructors and assistants: Tomas A. P. Alvarado, Lucinda Anderson, Mary A. Aquino, Terrie Batirch, Steven Bres, Teresa Brown, Mary Ann Brandt, Timothy Fendrick, Martha Carman, Nancy Cheville, Kathleen Clark, Patricia Clinton, Mary Connel, Janet Crab, Karen Colp, Dawn Dehner, Linda Eastman, Mary Kay Flinn, Babette Freedman, Duisa Gardner, Greta Graft, Anne Harmon, Vicie Harp, Wanda, Joan Haxay, Cornelia, Barbara Karmic, Susan Leflman, Rickey Marks, Lorraine M. McCarthy, Anne McGinn, Sheil Miller, Paula McDaniel, Sue Mortough, Judith Murray, Margaret Nall, Cynthia B. Nall, Linda Nall, Linda Nall, Margaret S. Nall, Gregory Parks, Pamela W. Parks, Nancy Parks, Warren P. Wileyman, Susan Willems, Nancy Witte, Kati Torode
Assistant to instructors: Joan Bowles, Greg Canova, Karen Callah, Louise Jense, Joan Jimenez, Judy John, Carla Leidich, Christine Randall, Kay Wehler
Degrees offered: B.S.N., M.A.
The College of Nursing is an integral part of The University of Iowa Health Center, striving in and contributing to teaching, research, and patient-care resources that have earned international recognition. The University health center provides an unusually close setting for nursing—preparation for nursing, because the educational and clinical resources that are needed to educate nurses are available on or near the campus. Faculty and students can participate fully in campus life 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 state 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, industry, and the Peace Corps, the World Health Organization, the Red Cross. A basic educational nurse 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 a college education essential 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. To addition to the advantages of combining general education with specific career preparation, a college or university program offers the advantages—hardly less important—of full participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing low less than in others pursuits, a college or university background enables many young people not only to realize their highest career potential, but to achieve the greatest measure of self fulfillment in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic 128-semester-hour program consists of 74 semester hours of Liberal arts General Education Requirement courses and supportive prenursing courses, and 50 semester hours of course work in nursing. Students complete the program in four or four and one-half academic years. Course offerings are based on the concepts of health, deviations from health, and nursing intervention, and are presented in progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rendered outside hospitals and in persons other than the acutely ill.

Approaches to the College of Nursing

Students may complete their entire program at Iowa, entering the first year in the College of Liberal Arts, as they may transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.

Applying students in the transfer program include Iowa State University, the University of Northern Iowa, and Upper Iowa University; and Blackhawk Community College in Belle Plano, Loras College in Dubuque, and Wartburg College in Waverly. Participating community colleges are located in Ottumwa, Mason City, Marshalltown, Muscatine, Clinton, Iowa Falls, Arcady, 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 wish more information about this plan should contact the College of Nursing coordinator, clinical nursing internship program, for specific information about participation.

Cooperative Clinical Internship

Cooperative education clinical internships are available to qualified undergraduate students who have completed three semesters of clinical nursing courses and have maintained a nursing grade-point average of 3.0 or higher. Interested students should contact the College of Nursing coordinator, clinical nursing internship program, for specific information about participation.

Aging Studies

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students a multidisciplinary approach to gerontology. Students plan their course of study with their academic advisor in close cooperation with the aging studies program coordinator. For further information see "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

Honors Program

Students in the College of Nursing may be eligible for invitation to the College of Nursing Undergraduate Honors Program at the completion of the first clinical nursing course. A nursing course grade-point average of 3.5 or higher and a cumulative grade-point average of 3.25 or higher is required.

To continue in the honors program and to be eligible to graduate with honors in nursing, students must maintain a cumulative nursing grade-point average of 3.5 and must complete at least three honors courses in the major major.

Further information and advisement is available from the College of Nursing.

Registered Nurses

For registered nurses who wish to complete the BSN degree and who have completed all required prerequisite courses, challenge examinations, and admission to the College of Nursing, a one-year plan of study is available for required nursing courses.

Registered nurses planning to enter the baccalaureate program should obtain special information and advice from the College of Nursing.

Faculty Advisers

Advisers from the Undergraduate Academic Advising Center advise pre-nursing students. After admission to the College of Nursing, each student is assigned a nursing faculty adviser.

Student Organizations

College of Nursing students have their own Association of Nursing Students and are also eligible for membership in the state and national associations of nursing students.

Expenses

Students pay the general University fees throughout the program. They also must purchase uniforms, work shoes, a stethoscope, a watch with a tachymeter, second hand, and supplies and materials for required nursing courses. Students arrange for their own health screening and transportation costs associated with clinical nursing courses.

Financial Aid

In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For information about financial assistance, write to the University Office of Student Financial Aid.

Admission

High School Background

The college strongly recommends four years of English, two years of history, three years of mathematics, and one year each of biology, chemistry, and physics, but 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.

Preclinical Background
Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work:
Rhetoric—4 semester hours may be satisfied by testing or 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 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 taken at the college level, it may be included in the 28 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 tests, write to American College Testing Program, Box 451, Iowa City, Iowa 52240.

Selection Factors
Fullfilment of minimum admission requirements does not guarantee admission to the College of Nursing. Applications are processed as they are received. From applicants who meet minimum requirements, the college's admission committee selects those who appear to be best qualified. The committee may require personal interviews. A physical examination report and specific health screening requirements must be on file at Student Health Services ten days prior to the opening of classes for the first clinical nursing course.

Application Deadlines
Applications must be received by May 1 for the fall semester, and December 1 for the spring semester.

Graduate Program
Master of Arts
The University of Iowa Master of Arts program in nursing is accredited by the National League for Nursing (NLN). Under the direct supervision of the program director, the curriculum is designed to build on general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from a baccalaureate degree program is one of the admission requirements.

The program prepares students in an area of nursing specialization and allows for development of skill in a role area related to their career goals. The curriculum has a 17 semester hour core of advanced nursing courses that are designed to serve as the foundation for specialization and role preparation in specific areas. From this approach to nursing specialization may be broad or narrow, the curriculum offers three general nursing specialization options that focus on patient populations: child health nursing, women's health nursing, and community health nursing. Within these speciality areas, students may tailor their plans of study to accommodate their specific interests by arranging for specific sites and types of field experience to fulfill the practicum component of the specialization courses; through selection of specific courses in the supporting areas; and through selection of problems for study in their thesis projects.

Similarly, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the curriculum is intended to be flexible enough to accommodate diverse student interests, the same type of tailoring is possible in the role preparation areas. Students, for instance, may select most of their supporting course work in education or administration in order to allow for maximum preparation in that role area.

Although courses offered by the College of Nursing emphasize a holistic approach to patients or clients, students can concentrate on either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select courses, field experiences, and supporting course work to expand their knowledge and skill in that area. Role preparation in advanced clinical practice with an emphasis on mental health nursing would further accommodate that interest area. Students, with the assistance of their academic advisers, can design plans of study within a flexible curriculum structure to suit their particular career interests.

Degree Requirements
The 45-semester-hour curriculum ordinarily requires four semesters of full-time study for completion. Part-time and evening study options are available. The student must maintain a 2.5 minimum grade-point average, and must successfully complete both a thesis project with oral defense and a written comprehensive examination.

The master's degree curriculum consists of five components:

Advanced Nursing Core (17 semester hours): course work in the areas of conceptual and theoretical foundations for nursing (5 semester hours), leadership in nursing (4 semester hours), methods of nursing research (6 semester hours), and an advanced issues seminar (2 semester hours).

Nursing specialization (8 semester hours): allows the student to build a special area of knowledge and practice that extends beyond the advanced nursing core specialization in the broad areas of child health nursing, adult health nursing, and community/health health nursing. Students may develop their areas of specialization through their choices of course work and field work experiences; for example, students selecting adult health nursing as their area of specialization may choose experiences with patients in a long-term care facility, a mental health clinic, or a cancer care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic advisor.

Role development (6 semester hours): Students may select administration, advanced clinical practice, or education as a role preparation area; two courses, each with a practicum, are offered in these role areas through the College of Nursing. Students electing to develop skills for careers in clinical practice, for example, will enroll for 6 semester hours of advanced clinical practice in addition to courses required for the nursing
specialization component. Students may select particular settings and/or preceptors compatible with their own career goals in fulfilling the practicum requirements of these courses.

Supporting courses (9 semester hours): Students may choose their supporting course work in areas related to their nursing specialization or role preparation interests; one supporting science course related to the nursing specialization area is required.

Thesis (3 semester hours): Every student is expected to write and successfully defend a thesis, this involves a systematic inquiry into a nursing problem including such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies that meet the requirements of the Graduate College.

Plan of Study
The plan of study described below is designed for the full-time student. Students who want 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
90.200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
90.204 Leadership in Nursing 4 s.h.
Theory and Application
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester
90.201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
90.222 Child Health Nursing I 4 s.h.
or
90.226 Adult Health Nursing I 4 s.h.
or
90.234 Community/Family Health Nursing 4 s.h.
90.210 Methods of Research in Nursing 3 s.h.
Supporting course 3 s.h.
Total 12 s.h.

Second Year
Fall Semester
90.211 Methods of Research in Nursing II 3 s.h.
90.223 Child Health Nursing II 4 s.h.
or
90.227 Adult Health Nursing II 4 s.h.
or
90.235 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.
96.279 Thesis 2 s.h.
Total 12 s.h.

Spring Semester
96.206 Professional Seminar: Issues in Nursing 2 s.h.
96.247 Nursing Education: Process, Roles, and Strategies I 3 s.h.
or
96.251 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
96.260 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
Supporting Course 3 s.h.
96.279 Thesis 3 s.h.
Total 11 s.h.

Admission
Students should seek admission to the graduate program in nursing through direct application to the Graduate College of the University.

Minimum requirements for admission to the Graduate College are a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) Aptitude Test scores; scores from the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.5 minimum grade-point average for regular admission, or a 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 programs are reviewed on a continuing basis. For review, the applicant’s file must be complete, with all relevant materials submitted. Deadline for spring 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 University without commitment to a degree objective.

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 take some graduate courses in the University without commitment to a degree objective.

Admission as a professional improvement student requires a formal application, including submission of three recommendations and all academic transcripts. GRE Aptitude Test scores must be submitted to fulfill the University requirement before the end of the first semester registration. Deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester and May 1 for admission in the summer session.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master’s candidate, professional improvement students are required to follow the application procedure described in the preceding section if they wish to seek admission as a master’s degree candidate. Only 3 semester hours, or 6 graduate level course 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 nonacademic, 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 number 1 and is accredited by the National Accreditation Board of the American Nurses Association.
College of Pharmacy

Dean: Robert A. Wiley
Dean emeritus: Dale E. Wurster
Associate dean, director of pharmaceutical affairs: John L. Lach
Assistant professor for undergraduate affairs: David F. Corne

Head, Division of Medicinal Chemistry-Natural Products: Joseph G. Capron
Head, Division of Pharmaceutical Sciences: Douglass R. Wise
Head, Pharmaceutical Sociology and Economics: Capt. K. Rovina
Coordinator, Pharmacy Ceasing Education: Wende L. Kerr

Head, Division of Clinical/Hospital Pharmacy

Sandra K. Helwig
Coordinator, Undergraduate Clinical Pharmacy Education: Paul J. Perry
Coordinator, Graduate Clinical Pharmacy Education: Richard D. Leif


Professor emeritus: Dale E. Wurster

Adjunct professor: Lester Chabot

Associate professor: Mary J. Bong, Tim Pong

Chin, Michael W. Qibel, Douglas D. Rosenblum, Dennis L. Helging, Wende L. Kerr, Ronald D. Leif, Robert J. Lambari, Lloyd E. Melfi, Jr., Paul J. Perry, Ronald A. Prince, Clayton R. Rowland, Peter Vogel-Pedersen

Assistant professor: Scott F. Jones


Associate professor: Michael Klasner

Adjunct assistant professor: Dorothy M. Miller, Gary Smith

Clinical associate professor: Bruce Alexander, James A. Plot

Clinical assistant professor: Ruth Ann Cullen


Clinical instructors: David H. Berhard, Bernard J. Ciminera, Dennis A. Elert, Robert Malick, Alan L. Mootert

Degrees offered: B.S., Pharm.D., M.S., Ph.D.
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, 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 governmental agencies 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, commercial buying, and advertising. Many are employed in pharmaceutical sales as medical service representatives. Pharmacy training is especially valuable to these men and women, who are responsible for acquiring and providing medical supplies, veterinary drugs, and other pharmaceutical products with knowledge and experience.

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 preparatory 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 preparatory study can complete the professional program in three years if the preparatory study includes, in addition to the basic professional 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 licensure examination given by the Iowa Board of Pharmacy Examiners.

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 24 semester hours of elective courses, 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 probations, pass-fail, credit by examination, minimum schedule, second-grade-only option, waiver or substitution of course, cancellation of registration, drop date, and correspondence study, see the "College of Pharmacy section in the current Schedule of Courses.

Admission Requirements

Recent changes in the admission requirements and in the curriculum of the baccalaureate degree program affect students admitted to the college in the fall of 1985 and after. Students admitted prior to the fall 1985 session must satisfy requirements that are different from the following. Questions concerning satisfaction of degree requirements should be directed to the chair of the undergraduate study and curriculum committee.

Preprofessional Course Work

Rhetoric: 8 semester hours, or 6 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 296 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 enroll in a community college for two years before transferring to The University of Iowa should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum

First Year

First Semester

4613 Pharmacy Math
4614 Pharmaceutical Chemistry 1
3713 Principles of Animal Biology
4101 Elementary Quantitative Analysis
Total 15 semester hours

Second Semester

4614 Pharmacy Orientation
4122 Organic Chemistry II
4141 Organic Chemistry Laboratory
*0116 Principles of Human Anatomy
**General Education Electives
Total 15-17 semester hours

* Also offered first semester for students on a 2.5 program only.

**In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elective courses should be in the behavioral, social, and humanistic areas of knowledge.

Second Year

First Semester

4623 Pharmacology I
59145 Biochemistry for Pharmacy Students
61112 Health Sciences Microbiology
*0102 Principles of Human Anatomy
General Education Electives
Total 6-8 semester hours

Second Semester

4623 Pharmacology II
4624 Pharmacy Practice
61112 Health Sciences Microbiology
Total 6-8 semester hours

Second semester includes professional laboratory work in the College of Pharmacy. Students normally begin professional laboratory work in the second semester. Courses listed above for the second semester include professional coursework plus courses required in the behavioral, social, and humanistic areas of knowledge.
<table>
<thead>
<tr>
<th>Total</th>
<th>15-18 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;May be taken in second semester of first year&quot;</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>4811</td>
<td>Pharmacology II</td>
<td>4</td>
</tr>
<tr>
<td>4822</td>
<td>Pharmacology II</td>
<td>4</td>
</tr>
<tr>
<td>4826</td>
<td>Socioeconomics: Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>4610</td>
<td>Medical Chemistry: Natural Products II</td>
<td>4</td>
</tr>
<tr>
<td>72:150</td>
<td>Intermediate Physiology</td>
<td>4</td>
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**Third Year**

**First Semester**

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>4811</td>
<td>Pharmacology II</td>
<td>4</td>
</tr>
<tr>
<td>4813</td>
<td>Medical Chemistry: Natural Products II</td>
<td>4</td>
</tr>
<tr>
<td>4821</td>
<td>Introduction to Human Pathology</td>
<td>4</td>
</tr>
<tr>
<td>71:191</td>
<td>Pharmacology for Health Sciences: Pharmacy</td>
<td>5</td>
</tr>
<tr>
<td>4610</td>
<td>Pharmaceutics/Bioeconomics: Practice Management</td>
<td>3</td>
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<td></td>
<td>Total</td>
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</tr>
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**Second Semester**

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>S.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4812</td>
<td>Medical Chemistry: Natural Products III</td>
<td>4</td>
</tr>
<tr>
<td>71:103</td>
<td>Pharmacology and Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>4610</td>
<td>Clinical Pharmacy I</td>
<td>3</td>
</tr>
<tr>
<td>4611</td>
<td>Therapeutics I</td>
<td>3</td>
</tr>
<tr>
<td>4612</td>
<td>General Education Electives</td>
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<tr>
<td></td>
<td>Total</td>
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**Fourth Year**

**First Semester**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>4631</td>
<td>Jurisprudence</td>
<td>2</td>
</tr>
<tr>
<td>4617</td>
<td>Pharmacy/Pharmacy I</td>
<td>4</td>
</tr>
<tr>
<td>4611</td>
<td>Drug Information</td>
<td>3</td>
</tr>
<tr>
<td>4612</td>
<td>Therapeutics I</td>
<td>4</td>
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<td>4613</td>
<td>General Education Electives</td>
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<tr>
<td></td>
<td>Total</td>
<td>13-17</td>
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**Second Semester**

<table>
<thead>
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<th>Course Title</th>
<th>S.h.</th>
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</thead>
<tbody>
<tr>
<td>4699</td>
<td>Hospital Pharmacy: Extensive</td>
<td>4</td>
</tr>
<tr>
<td>4660</td>
<td>Community Pharmacy: Extensive</td>
<td>4</td>
</tr>
<tr>
<td>4610</td>
<td>Clinical Pharmacy: Extensive</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16</td>
</tr>
</tbody>
</table>

**Graduate Programs**

The college has graduate programs in each of its basic academic divisions. More than 1,000 students have completed the B.S. degree in Pharmacy, and the B.S. in Medicinal Chemistry, and the B.A. in Pharmaceutical Sciences. A Master of Science degree is available in clinical pharmacy.

Graduate and professional programs provide opportunities for students to pursue advanced degrees in pharmacy, including those leading to the Ph.D. degree in Pharmaceutical Sciences. Prospective students are encouraged to contact the Office of Graduate Studies for information about the graduate program in pharmacy.

**Facilities**

The Pharmacy Building is located in the health center complex on the University's main campus, in close proximity to the colleges of Medicine, Nursing, and Dentistry. The University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library are also in close proximity.

The Pharmacy Building is a state-of-the-art facility designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classroom and laboratory space, there are well-equipped separate laboratories for instruction at the undergraduate and graduate levels. The building also houses the Learning Resource Center (LRC), with computer stations and periodic updates to undergraduate and graduate pharmacy students. The LRC has several computer terminals available to students.
46.182 Pediatrics Clerkship

Advanced applications of clinical pharmacology/hospital drug principles to optimize drug therapy management in the infant and adolescent patient population.

Prerequisites: Pharm.D. standing and consent of instructor.

46.183 Pharmacokinetics Clerkship

Focuses on the experimental design, data interpretation, and interpretation of drug therapy results in the surgical patient population. Focuses on pharmacokinetics service, Pharmacokinetics, Pharm.D. standing and consent of instructor.

46.184 Geriatric Clerkship

Advanced applications of clinical pharmacokinetics and pharmacodynamics in the care of geriatric and gerontology patients. Focuses on a comprehensive geriatric care model. Prerequisites: Pharm.D, standing and consent of instructor.

46.185 Toxicology Clerkship

Focuses on the clinical practice of pharmacokinetics related to toxicological doses. Prerequisites: Pharm.D. standing and consent of instructor.

46.186 Surgery Clerkship

Advanced applications of therapeutic skills necessary for the pharmacokinetic management of general surgery patients. Prerequisites: Pharm.D. standing and consent of instructor.

46.187 Clinical Nuclear Pharmacy Clerkship

Advanced clinical instruction in the area of radiopharmaceuticals, radionuclide-directed drug administration, pharmacological intervention in nuclear medicine studies, and radiopharmaceutical drug monitoring. Prerequisites: Pharm.D. standing and consent of instructor.

46.188 Dental College Clerkship

Advanced clinical applications dealing general and local anesthesia, conscious sedation and pain control, antibiotic therapy, and participation in management of medically compromised patients. Prerequisites: Pharm.D. standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

46.189 Hospital Pharmacy: Survey

2 a.b.

Clinical pharmacy rotation, pharmacy counseling, literature and practice of pharmacy counsel, drug distribution and pharmacy service, pharmacy service systems, drug utilization review, drug information services, pharmacy service systems, drug utilization review, drug information services, and resort pharmacy service. Prerequisites: Pharm.D. standing and consent of instructor.

46.190 Advanced Clinical Pharmacy

2 a.b.

Application of principles of pharmacology and pharmacokinetics to patient care. Prerequisites: Pharm.D. standing and consent of instructor.

46.191 Clinical Pharmacy: Drug Literature

2 a.b.

Literature of drug therapy practice, including clinical pharmacy, emphasis on techniques of evaluating biomedical literature, pharmacokinetics, drug-pharmacokinetics, drug-therapeutics, clinical pharmacology, drug interactions, and new drug testing.

46.192 Hospital Pharmacy: Campaigns

2 a.b.

Theory and application in parenteral, percutaneous, and testing of parenteral drug forms.

46.193 Nuclear Pharmacy

2 a.b.

Design, creation, and evaluation of radiopharmaceuticals and radionuclide-directed drug administration. Prerequisites: Pharm.D. standing and consent of instructor.

46.194 Clinical Pharmacokinetics

3 a.b.

Contemporary pharmacokinetics in selected disease states. Discussion of current literature emphasizing the treatment and design strategies, relative efficacy, and risk of drug therapy. Prerequisites: Pharm.D. standing and consent of instructor.

46.195 Clinical Hospital Pharmacy: Research

3 a.b.

Prerequisites: Pharm.D. standing and consent of instructor.

46.196 Clinical Hospital Pharmacy: Seminar

2 a.b.

Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.

46.197 Hospital Pharmacy: Directed Study

3 a.b.

Independent study in particular areas of pharmacy. Prerequisites: Pharm.D. standing and consent of instructor.

46.198 Hospital Pharmacy: Internship

3 a.b.

Pharmacokinetics and administrative training in practical problems in hospital pharmacy. Prerequisites: Pharm.D. standing and consent of instructor. Study abroad options are available.
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 truth, and the good of several departments and colleges of the University and by bringing the University generally into direct contact with the citizens." The division's organization and services include the following:

Center for Credit Programs

The Center for Credit Programs is responsible for the delivery of University of Iowa credit courses to adults and other part-time students, both in Iowa City and throughout the state. In cooperation with the University's various colleges and academic departments, the Center for Credit Programs arranges course delivery to graduate and undergraduate students by making use of the various formats and delivery systems listed below.

Correspondence Courses

Over 160 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, program descriptions, and other information 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 cultural 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 nonclassified students in the Iowa City area. All courses are offered from schools and departments of the University. For a Saturday and Evening Classes catalog, write to The Center for Credit Program, W400 Seashore Hall.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies (B.L.S.) degree is designed to serve adults who cannot 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 classes, off-campus courses, and television and multiedge courses. Course work from community and private colleges may be applied toward the degree, as may work done at any of the Iowa Regents universities. The Bachelor of Liberal Studies is awarded by the College of Liberal Arts. For more information contact the Center for Credit Programs, W400 Seashore Hall.

Center for Conferences and Institutes

The conference center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for nonresident adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer 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 broad programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The establishment of appropriate resources, coupled with the professional planning and execution of conferences and other short-term training programs, helps to ensure the achievement of the educational objectives specified for each program.

The director of conferences is responsible for appraising and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings held in the Iowa Memorial Union for groups other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions to be held on campus or in the Iowa City-Coralville community are expected to schedule these activities through the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union, to the extent that they are available and appropriate.

Adult Education Noncredit Program

This open enrollment program provides a wide variety of noncredit short course offerings of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units may be awarded for course completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

WGUI and KQVL-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcasting that promotes the resources and activities of the University. The broadcast schedule consists of educational, cultural, and informational programming not generally available elsewhere. As an affiliate of National Public Radio (NPR), WGUI contributes program material which has been heard on more than 250 non-commercial radio stations. The main studios and offices are located in 3300 Engineering Building, and a free copy of the station's Program Guide may be obtained by writing to that address.

Institute of Public Affairs

The mission of the institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the institute are available to state and local government agencies and to citizens and 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 film and videotapes, available on campus without charge for instruction and curricular-related activities, and for rental off campus. Smaller collections of audio tapes, filmstrips, and slides, plus facilities for student or faculty utilization, also are available. Catalogs of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use film, slide, filmstrip, Egan, and overhead projectors; portable projection screens; audio tape recorders; record players; portable public-address systems; and display devices (easels, easel 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 pictures—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; portable 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 Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.
Administrative Officers

State Board of Regents
The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa State College (now the University of Northern Iowa), 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:

President: John McDonald, Des Moines
Vice-President: Richard B. Remington
Secretary/Treasurer: Leland A. Hoff, Des Moines

Central Administration
President: James O. Freedman, Des Moines
Vice-President for Academic Affairs and Dean of Faculties: Richard D. Remington
Vice-President for Educational Development and Research and Dean of the Graduate College: Dean C. Spronk
Vice-President for Finance and University Services: Donny E. Ellis, Des Moines
Vice-President for Student Services and Dean of Academic Affairs: Philip O. Hubbard

Academic Affairs
Vice-President and Dean of Faculties: Richard D. Remington
College of Business Administration
Dean: George D. Dall

Industrial Relations Institute Acting Director: David G. Gallie

Law
Institute of Accounting Research Acting Director: Donald W. Collins
Institute for Economics Research Director: Jerald R. Barlow
Institute for Insurance Education and Research Acting Director: Richard C. Pogreba
Institute of Entrepreneurial Management Acting Director: Richard C. Pogreba

College of Dentistry
Dean: James H. McLean

Iowa State College of Dental Research Director: Christopher A. Quale

College of Education
Dean: Charles W. Case
Iowa State University College of Education Acting Director: Charles W. Case, David Croin

College of Engineering
Dean: Robert G. Hering
Institute of Hydraulics Research Director: John F. Kennedy

Graduate College
Dean: David H. Spronk
Institute of Advanced Studies: Rudolph W. Schulz

College of Law
Dean: L. William Hinck

Institute of Law
Institute of Law and Economics Acting Director: John F. Kennedy

School of Library and Information Science Dean: Carl F. Ogden

School of Music Acting Director: Marilyn F. Scavilla

School of Religion Acting Director: John P. Birk

School of Social Work Acting Director: Janice Wood

School of Business Administration
Dean: John W. Eckstein

College of Nursing
Dean: Geraldine Felton

College of Pharmacy
Dean: Robert A. Minsky
Division of Continuing Education
Dean: Edward J. Leavens

Audiovisual Center Director: William Ogden

Center for Conferences and Institutes Director: Jean Striesman

Center for Credit Programs Director: Von V. Putnam, Jr.

Community College Affairs Director: David R. Anderson

Institute of Public Affairs Director: Clayton Stringberg

Iowa Lakeside Laboratory Director: Richard V. Borkoski

Iowa State University Radio Station WSSU Director: George S. Klingler

Iowa State Center for the Arts
Governor Philip J. Hubbard

University Libraries
University Libraries: Dale M. Bents

Museum of Art
Director: Robert C. Hobbs

Old Capitol
Director: Margaret N. Kyes

Summer Session
Director: Tim V. B. Rea

Affirmative Action Affairs
Director: June D. Cargile

Education Development and Research
Vice President: Duane C. Spronk

Division of Sponsored Programs
Director: Margery E. Hoppin

Office of Project Development
Director: Jay Senn

Office for Student Development
Director: Alford Heel

Health Services Research Center
Director: Samuel Levitt

Office of International Education and Services
Director: Stephen M. Aruna

Office of Information Technology
Director: W. Lee Shope

Public Information and University Relations
Acting Director: Thomas K. Bauer

Occupational Health Services
Director: Paul R. Pomona, Jr.

Health Protection
Director: William E. Twoler

State Archaeology
Director: Duane C. Anderson

University House
Director: Jay Senn

University of Iowa Press
Director: Paul Zimmer

Student Services
Vice President: Philip G. Hubbard

Dean of Student Services: Phillip E. Jones

Admissions
Director:
Registrar
Registrar: Jerald W. Dallam
Residence Services
Director: George L. Devoll
Hancher Auditorium
Director: Wallace Chappell
Iowa Memorial Union
Director: Jean Kendlall
Business and Liberal Arts Placement
Director: Nancy C. North
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Director: Emil Kindemacher
Campus Programs and Student Activities
Coordinator: Kevin Taylor
Office of Services for the Handicapped
Coordinator: Donna Chandler
Women's Resource and Action Center
Coordinator: Susan Buckley
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Business Manager: Michael J. Finnegan
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Controller and Secretary: Douglas N. Young
University Personnel Services
Acting Director: George A. Schuhle
Planning and Administrative Services
Director: Richard E. Glown
Intercollegiate Athletics for Men
Director: Chalmer W. Gilson
Intercollegiate Athletics for Women
Director: Christine Grant
Recreational Services
Director: Harry R. Ostrander
University Health Services
Assistant to the President for Statewide Health Services: John W. Colton
University Hospitals and Clinics
Director: John W. Colton
Psychiatric Hospital
Director: George Winlock
State Hygienic Laboratory
Director: William J. Hauser
University Hospital School
Director: Alfred Healy
Student Health Services
Acting Director: Mary L. Kowanski
Regional Child Health Specialty Clinics
Director: John C. MacQuen
General University
Alumni Association
Executive Director: Thomas L. Brown
University of Iowa Foundation
President: Daniel D. Wynn

Silverman-Hoffman, Beatrice, M.A. Leipzig (Germany) 1934, B.A. 1919 (Germany).


The following is extracted from the Board of Regents section of the Iowa Administrative Code as of May 1, 1986.

Admission Rules Common to the Three State Universities

720-1.1(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 certificate 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 for foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:
   a. Be admitted unconditionally,
   b. Be admitted conditionally,
   c. Be required to enroll for a tryout period during a succeeding 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 Iowa high schools, but additional emphasis will be given to their academic achievement.

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 exists and achievement scores on standardized examinations which will demonstrate that they are adequately prepared for academic study.

Students with superior academic records may be admitted, on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation. In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to satisfy persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

720-1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice. Applicants must submit a formal application for admission, together with a $10.00 application fee, and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test scores 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 succeeding summer session, or
   d. Be denied admission.

1.2(2) Admission of students with fewer than twelve semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under the early admission program will not be considered for admission until information concerning the reason for the suspension has been received from the college or university from which the suspension was received. 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.

720-1.3(262) Transfer credit practices

The regent universities enforce the Joint Statement on Transfer and Award of Academic Credit approved in 1975 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (COPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is accepted for transfer except that credit may be denied determined by the receiving university to be of a remedial, vocational, or technical nature. Credit in courses or programs in which the student is not enrolled. The credit is not directly involved, may not be accepted, or may be accepted in 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 and eighty of the number of credit hours required for that degree.
1.4(1) General
a. A person enrolling at one of the three state university 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.

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 that person 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 dependant 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 persons from the state. It is regretted that persons who claim to Iowa domicile while living in another state or country will provide proof of the continued Iowa domicile such as to evidence that they have not acquired a domicile in another state. They have maintained a continuous domicile in Iowa, and if they have filed regular Iowa resident income tax returns during absence from the state.
c. Domiciliation 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 may be subject to serious disciplinary action and must also pay the nonresident fee for each term attended.
e. An alien who has an immigration visa may be classified as a nonresident for the same manner as a United States citizen.
f. A person who has been certified as a refugee by the appropriate agency of the United States who enrolls as a student at a university governed by the Iowa state board of regents may be accorded immediate resident status for tuition purposes where the person (1) Comes directly to Iowa from a refugee facility or port of debarkation; 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 required to pay the usual fee for the establishment of an Iowa domicile.

1.4(3) Special
a. Effective July 1, 1977, requires that military personnel who claim residency in Iowa (home of record) will be required to file Iowa resident income tax.
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 in 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 non-support 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-provided absence from the state was for a period of less than twelve months and provided domicile is re-established. If the absence from the state is for a period exceeding twelve months, resident status would 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 by an individual to the established criteria. However, a long-term former resident who returns after an absence of more than one year but less than two years is allowed to regain residency after one year even through a full-time military term.

d. A student who has been a continuing student at the University of Iowa and who graduates from graduate school and whose parents move from Iowa may become a resident at the beginning of the next term provided the student is dependent upon the parents for 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 is engaged in a religious vocation, Peace Corps, VISTA or alternate military service as a non-resident classification is maintained if the person immediately returns to the state following the assignment. A person who enters such service from the state and who is on furlough may be considered a resident if the person is returning to the field. If service has been terminated prior to returning to Iowa, the person would be presumed to be a nonresident if the return to the state was more than twelve months from the termination of the service.

1.4(4) Review committee

These regulations shall be administered by the registrar or 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 withdraw 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 of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been issued 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 submit an application form to the college of business administration. Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

720—3.2(262) 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. Achieved satisfactory performance on the university’s required admissions examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken in the University of Iowa, and on all courses undertaken in business and economics.

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.

Completion of the minimal 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 best qualified.

720—2.4(262) College of dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applications 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.

Applications for admission to dentistry are encouraged to consider an academic program 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.

Completion of the specific requirements for admission to the college of dentistry are clearly stated in the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified for the study of the college of dentistry. Each applicant must place his or her application on the file of the director of admissions the completed application form and an official transcript from each college attended.

The college of dentistry has established specific grade-point 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 ninety-six 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. Since the quality of course work is predicated on science basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of dentistry.

Applicants who have completed the requirements for admission to dentistry live or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions. Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents. Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center. To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the aptitude test no later than October 1. Applicants must contact the admissions committee to begin its selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of acceptance in order to secure their applications. This deposit is not refundable but is credited toward the first term's 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 university student health service within two weeks following notification of acceptance. All applicants must also complete, through student health service, an AEP-1 form of the chest and a successful vaccination against polio prior to registration.

2.4(2) Advanced standing

Applications for admission with advanced standing will be handled as individual cases.

720—2.5(262) College of engineering

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of each session.

2.6(1) Admission of freshman students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by this 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 accept a revised application if the applicant's record shall indicate the candidate has 2.3 or above an acceptable degree of the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the college of engineering.

Each applicant for admission must take the Law school aptitude 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 at various times per year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not ensure admission to the college of law. From the applicants 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. The law admissions
committee may request 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; (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. Applications 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.

Eligibility of the specific requirements for admission listed below does not insulate the admission to the college of medicine. From the applicants meeting the specific requirements, the admissions committees of the college of medicine will select those applicants whose file and judgment appear to be best qualified for the study and practice of medicine.

Prior to entrance an applicant must:

a. Have received the baccalaureate degree;

b. Have completed three years of a combined baccalaureate—medicine curriculum which qualifies the applicant to receive the degree prior to completion of the first year in medicine; or

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 place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will suffice to meet 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 conditions.

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 have evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grades in science. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of medicine.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will also be given to outstanding nonresidents. Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are requested to complete the test in May 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 for the appointment for required interviews. Applicants accepted for admission are required to submit a satisfactory physical examination report to the University of Iowa 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 immunization 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 course, showing the actual 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 each course or by action of the faculty upon recommendation of the professor in charge of the course.

720—2.9(265) 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 who have completed two years in nursing must present a minimum of thirty-three semester hours completed in accredited college. 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 all suitable courses who have completed the College. 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.

Completion of the minimum requirements listed above, however, does not ensure 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.
2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include thirty-two semester hours of college level work exclusive of credit in military and air science and physical education. The thirty-two semester hours must include:

Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts at the state University of IOWA. Applicants from other institutions may meet this requirement by presenting six semester hours of credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour course in communication skills.

Inorganic chemistry and qualitative analysis, eight semester hours.

College mathematics, eight semester hours.

Physics or zoology, eight semester hours.

Students from other institutions may substitute a comparable eight-semester-hour course in biology in lieu of zoology.

Military or air science (if available), zero to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(2) Scholarship and application deadline

To be considered for admission to the college of pharmacy, students must have earned a 2.0 or C average on all college work undertaken. The minimum grade-point average of 2.0 is based on the state University of Iowa's marking system in which the grade of "A" is equivalent to 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 and as listed in 1.6(241), 1.9(282) and 1.2(282).

720—2.12(263) 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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For information about the admission requirements, degree requirements, and colloquium policies of the respective colleges, see those pages: Liberal Arts, 34-36; Business Administration, 249-267; Dental Health, 258-273; Education, 274-313; Engineering, 314-345; Graduate, 346-359; Law, 360-365; Medicine, 366-407; Nursing, 408-413; Pharmacy, 414-417

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