8-1-1984

The University of Iowa General Catalog 1984-86

University of Iowa

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The University of Iowa
General Catalog 1984-86

New Series 2158 (USPS 651-460) August 1984

Issued five times during the year: semimonthly in April and once in July, August, and December. Published by The University of Iowa, Iowa City, Iowa 52242.

Second-class postage paid at the post office in Iowa City, Iowa 52242. Postmaster: Send address changes to The University of Iowa, Calvin Hall, Iowa City, Iowa 52242.

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

This Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time the Catalog was prepared. However, information concerning regulations, policies, fees, curricula, 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 that is available before each term. The brochures Information for Prospective Students and The Iowa Graduate Experience also include information on admission, fees, scholarships, student aid, housing, and student personnel services.
# University Calendar

<table>
<thead>
<tr>
<th>First Semester</th>
</tr>
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<tbody>
<tr>
<td><strong>1984-85</strong></td>
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<td>Registration begins</td>
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<td>Classes begin</td>
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<td>Commencement</td>
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<tr>
<td>University holidays</td>
</tr>
<tr>
<td>University holiday</td>
</tr>
</tbody>
</table>

| **1985-86**    |
| Registration begins | August 25 |
| Classes begin | August 28 |
| University holiday | September 2 |
| Homecoming | October 5 |
| Thanksgiving recess | November 27 |
| University holidays | November 28-29 |
| Classes resume | December 2 |
| Classes end | December 13 |
| Examination Week | December 16-20 |
| Commencement | December 21 |
| University holidays | December 24-25 |
| University holiday | January 1 |

<table>
<thead>
<tr>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1984-85</strong></td>
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<td>Registration begins</td>
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<tr>
<td>Classes begin</td>
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<tr>
<td>Foundation Day</td>
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<tr>
<td>Saturday classes only meet</td>
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<tr>
<td>Classes resume</td>
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<tr>
<td>Classes end</td>
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<tr>
<td>Examination week</td>
</tr>
<tr>
<td>Commencement</td>
</tr>
<tr>
<td>University holiday</td>
</tr>
</tbody>
</table>

| **1985-86**    |
| Registration begins | January 16 |
| Classes begin | January 20 |
| Foundation Day | February 26 |
| Spring vacation begins | March 22 |
| Saturday classes only meet | March 31 |
| Classes resume | March 9 |
| Classes end | May 12-16 |
| Examination week | May 17 |
| Commencement | May 26 |

<table>
<thead>
<tr>
<th>Summer Session</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1985</strong></td>
</tr>
<tr>
<td>Registration</td>
</tr>
<tr>
<td>Classes begin</td>
</tr>
<tr>
<td>University holiday</td>
</tr>
<tr>
<td>Session ends</td>
</tr>
<tr>
<td>Commencement</td>
</tr>
<tr>
<td>Independent Study Unit opens for law and graduate students</td>
</tr>
<tr>
<td>Close of Independent Study Unit</td>
</tr>
</tbody>
</table>

| **1986**    |
| Registration | June 9 |
| Classes begin | June 10 |
| University holiday | July 4 |
| Session ends | August 1 |
| Commencement | August 1 |
| Independent Study Unit opens for law and graduate students | August 4 |
| Close of Independent Study Unit | August 22 |
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The University of Iowa is one of Iowa's three state universities. The core of the University is the College of Liberal Arts. Within the college there are seven schools: Art and Art History, Journalism and Mass Communication, English, Library and Information Science, Music, Religion, and Social Work. The College of Liberal Arts is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College, all located on a single campus in Iowa City. 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. Total University enrollment during 1983-84 was about 29,059 students.

Founded on February 23, 1847, The University of Iowa is the state's oldest institution of higher education. It established the first law school west of the Mississippi. It was the country's first state university to admit women and men on an equal basis, which it did from its opening in 1852. It was the first state university to appoint creative writers in ten of the traditional academic fields for graduate degrees in the arts and to pioneer the now world-recognized UI writers workshops. It is recognized as the place where the science of speech pathology originated; it has earned recognition for the quality and creativity of its teaching and research programs in space physics, expository writing, and the teaching of foreign languages, and in graduate programs in speech, dramatic art, and communications, to cite just a few recent examples.

The UI faculty includes some 1,600 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. The University seeks to foster faculty vitality by maintaining a healthy balance between teaching and research, and between undergraduate and graduate or professional instruction.

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 more than 90 foreign countries. About 70 percent of the University's entering freshmen had a 3.0 average or above in high school. Approximately 87 percent ranked in the upper half 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. Half of the University's students have some form of employment. One-third have education loans. One of ten 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 small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward linking learning, the University in recent years has substantially expanded educational programs both on and off campus for individuals who cannot enroll as regular full-time students. These "nontraditional" learners have opportunities ranging from workshops, conferences, workshops, and continuing education programs for professionals, to 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 Studies (B.L.S.) degree program geared specifically to adults who wish to earn a college degree but are unable to enroll in traditional on-campus study.

**Degrees Offered**

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

- Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of Fine Arts, Bachelor of General Studies, Bachelor of Liberal Studies, Bachelor of Music Education, Bachelor of Science in Engineering, Bachelor of Science in Pharmacy, Bachelor of Science in Nursing, Doctor of Dental Surgery, Doctor of Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Fine 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 University of Chicago.
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—The Accreditation Board for Engineering and Technology (ABET)
- Law—American Bar Association; Association of American Law Schools
- Medicine—Committee on 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 for Journalism
- Library and Information Science—American Library Association
- Music—National Association of Schools of Music
- Social Work—Council on Social Work Education

**Departments and Programs**

- Chemistry—American Chemical Society
- Dental Hygiene—American Dental Association Council on Dental Accreditation
- Dietetics—American Dietetic Association
- Home Economics—American Home Economics Association, Council for Professional Development
- Hospital and Health Administration—Accrediting Commission on Education for Health Service Administration
- Medical Technology—Committee for Allied Health Education and Accreditation of the American Medical Association

**Physician Assistant—Committee for Allied Health Education and Accreditation of the American Medical Association**

**Physical Therapy—Committee for Allied Health Education Accreditation of the American Physical Therapy Association**

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

**Psychology—American Psychological Association**

**Speech Pathology and Audiology—American Speech-Language-Hearing Association**

**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 weekends for students in the Graduate College and the College of Law.

**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 upon appropriate opportunities and conditions in the classroom, on the campus, and in the larger community. Students are expected to exercise their freedom to learn with responsibility, and 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 or by others.

This Code applies only where a student's misconduct has adversely affected some University process or function or some other 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.

**Human Rights**

The University is guided by the precept that in no aspect of its programs shall there be differences 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. This principle is expected to be observed in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University shall work cooperatively with the community in furthering this principle.

**Student Complaints Concerning Faculty Actions**

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

1. The student should first attempt to resolve the issue with the faculty member involved. If lacking a satisfactory outcome, the student should turn to the departmental executive officer, if any. If a satisfactory outcome still is not obtained, the student may take the matter to the collegiate dean. In addition, graduate students should consult with the associate dean for academic affairs in the Graduate College concerning mechanisms for resolving complaints. Some colleges (Business Administration, Dentistry, Education, Engineering, Law and Nursing) also have established an ombudsperson system as an alternative mechanism for bringing student complaints. Information concerning the informal mechanisms established in a specific college is available in the collegiate dean's office or College Associates Council (CAC) office.

If a student complaint concerning faculty actions cannot be resolved through the informal mechanisms available, the student may file a formal complaint which will be handled under the procedures established for dealing with alleged violations of the Statement of Ethics and Academic Responsibilities as specified in section 20.266 of the University Operations Manual. A description of these procedures can be obtained from each college dean's office, collegiate ombudsperson, the Liberal Arts Advisory Office, the Undergraduate Advising Center, or the office of the CAC.

**Policy on Sexual Harassment**

Under the Regents Rules of Personal Conduct, the University of Iowa's Human Rights Policy, faculty, staff, and students have the right to be free from sexual harassment by colleagues, supervisors, or students. The University will not condone actions and words which a reasonable person would regard as sexually harassing or coercive.

**Individuals who feel that they have been the objects of such harassment should**

advise their supervisor, dean, or The University of Iowa’s Amative Action Officer. In investigating such complaints, the following principles will be observed:

That the person bringing the complaint would suffer no retaliation.

That the complaint would not be discussed with anyone else without the complainant’s permission.

That if permission was given to pursue and investigate the complaint, that such an investigation would be conducted by the head of the major administrative unit in which the complaint was brought by or designee of that administrator;

That in conducting such an investigation, the right to confidentiality, both of the complainant and of the accused, would be respected;

That the investigation would be conducted as quickly as possible and the results reported to the complainant;

That in the event the complaint is found to be valid, that the person that has been guilty of sexual harassment will receive appropriate counseling or disciplinary action, as would be the case in other instances of violation of University policy.

University Marking System

Mark and Grade Points/ Semester Hour Definition
A (4) superior
B (3) above average
C (2) average
Below average but passing F
Failing
Passing (Nonsalute)
Passing audit
Withdraws

(Not used in computing grade-point averages)

The College of Law uses a numeric grading system.

Recognition of High Scholastic Achievement

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

All undergraduate colleges except Pharmacy

Pharmacy

Highest distinction
High distinction
next highest
next highest
next highest
next highest
3.75 - GPA
2.50 - 3.49
3.35 - 3.49

Records

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

Honorary and Professional Societies

Phi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among 64 national honorary and professional societies in which the University of Iowa has active chapters.

Applying for Admission

Correspondence regarding admission to any college of The University of Iowa should be addressed to the Admissions Office, 106 Calvin Hall, The University of Iowa, Iowa City, Iowa 52242. The first letter should request an application for admission, briefly describe the prospective applicant’s high school or college background, and outline his or her plans for further study, including the department or general field in which he or she expects to major. All applicants for admission to all colleges of the University must submit formal applications to the Admissions Office and must furnish official transcripts and other supporting material as specified.

Application Fee

A $10 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University. A Graduate College applicant must pay the fee, unless he or she has earned a degree from The University of Iowa. Application fees are not refundable, except to Iowa residents who are denied admission.

Application Deadlines

Applicants for admission must submit the required application documents to the Office of Admissions by the deadline dates listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" below).

College of Liberal Arts—Ten days before classes begin—all sessions

College of Business Administration—April 1 for summer session, March 1 for fall semester, September 1 for spring semester

College of Dentistry—November 30, fall semester only

College of Engineering—Ten days before classes begin, all sessions

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

College of Law—March 1, summer or fall semester

College of Medicine—December 1, fall semester only; Early Decision Plan, August 1 for the following year

College of Nursing—January 15, fall semester, June 15 for spring semester

College of Pharmacy—March 1, fall semester only

Dental Hygiene Program—March 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 providing the academic year in which the student plans to enroll in professional education courses

Foreign Students

The University of Iowa encourages foreign students to begin the process of applying for admission at least twelve months prior to matriculation. The applicant should have satisfied all the application procedures and submitted his or her complete application file to the Admissions Office by the dates given below.

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 who will 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 guidelines. College deadlines, individual departments, and programs may establish earlier deadlines which are indicated in their materials. Please carefully review all departmental materials for information about early deadlines.

Undergraduate Colleges

Business Administration

SUMMER TERM CIRCUIT COURT

CLERK'S OFFICE

401 New Court

Cedar Rapids, Iowa 52401

TELEPHONE: 398-6270
GENERAL INFORMATION

March 1 for summer session (June)
March 1 for fall semester (August)
September 1 for spring semester (January)

Engineering
March 1 for summer session (June)
March 1 for fall semester (August)
September 1 for spring semester (January)

Liberal Arts
March 1 for summer session (June)
April 15 for fall semester (August)
October 1 for spring semester (January)

Nursing
January 15 for fall semester (August)
June 15 for spring semester (January)

Pharmacy
March 1 for fall semester (August)

Applications to all other colleges and programs must meet the deadlines set forth above for all students.

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 an accredited college or university in the United States, United Kingdom, English-speaking Africa, Canada (except Quebec), Australia, or New Zealand.

A minimum TOEFL score of 480 is required for admission into the College of Dentistry. Newly admitted graduate students who score less than 550 on the TOEFL exam must complete an English proficiency evaluation prior to their first registration. Together with their academic advisors, graduate students determine whether or not they should enroll in English as a Foreign Language (EFL) course work.

Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores of at least 480 prior to their initial registration. The College of Engineering requires TOEFL scores of at least 530 for admission.

All newly admitted undergraduates are required to complete EFL course work as recommended by the Department of English as a result of the English proficiency evaluation. Students must complete the required English course work prior to enrolling in a respiratory care course which appears on their admission statements.

ACT Test Scores

The University of Iowa requires all entering freshman and undergraduate transfer students to complete the American College Testing (ACT) Assessment Program and have their test scores reported to the University before they register for classes.

The University of Iowa uses ACT scores for:
- Admissions—As a criterion for admitting some students unconditionally or on probation; for requiring some students to attend a probationary summer session; and for denying admission to applicants who do not meet minimal standards.
- Placement—As a basis for excusing some students from certain basic course requirements; for placing others in sections designed to meet individual needs; and for advising students concerning their programs of study and future educational plans.
- Scholarship—As a criterion for awarding University-administered scholarships and loans.

Scholastic Aptitude Test (SAT) scores may be submitted with freshman or undergraduate transfer admission applications and will be used for admission evaluation. However, ACT scores must be submitted prior to registration.

Tuition and Fees

The following is the University’s schedule of tuition and fees, per semester, for full-time students, for the academic year 1984-85. Extension courses are $56 per semester hour. Correspondence courses are $24 per semester hour. All fees are subject to the action of the State Board of Regents.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>1984-85</th>
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<tbody>
<tr>
<td>Resident</td>
<td>Nonresident</td>
</tr>
<tr>
<td>901</td>
<td>1725</td>
</tr>
<tr>
<td>736</td>
<td>1800</td>
</tr>
</tbody>
</table>

Law and Doctor of Pharmacy

<table>
<thead>
<tr>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1410</td>
<td>3330</td>
</tr>
<tr>
<td>800</td>
<td>2135</td>
</tr>
<tr>
<td>1960</td>
<td>4260</td>
</tr>
</tbody>
</table>

General fees provide for the student’s use of the Library, Campus Union facilities, and of libraries, laboratories, and gymnasium; free admission to minor sports events and to student-faculty concerts and plays; reduced rates for admission to major sports events and to performances by visiting stage and concert artists; subscriptions to the student newspaper, the Daily Iowan, delivered to housing units; certain student hospital services; and other activities and services as approved. However, extension and correspondence fees do not provide for the above listed benefits.

Registration

All persons who attend University classes must have been 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 Engineering, Liberal Arts, Pharmacy, Dentistry, Law, Medicine, and
Nursing may audit courses with proper approval. Students who audit courses will be assessed fees based on the fewest credits for which the course is available that semester.

**Procedure for Payment of Student Accounts**

Tuition and fees, board, room, and other University residence hall or fraternity/sorority housing expenses, and such incidental University expenses as library and parking fees, are payable on an installment basis, with billing the first of September, October, November for the fall semester, and the first of February, March, and April for the spring semester. Students with accounts overdue on the fifteenth of the month are reported to the registrar for cancellation of registration. There is a $10 fee for reinstatement within ten days of the cancellation date.

**Refund Schedule**

Students who cancel their registrations during a given semester receive a reduction of fees assessed as follows: during the first week of classes—90%; during the second week—75%; during the third week—50%; during the fourth week—25%. There is no reduction of fees for cancellations after the fourth week of classes.

**Numbering of Courses**

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or course number by which the course is administered. For example, "211" is the code for the course numbered 1 in the Department of Botany (2), entitled "Introduction to Botany." Course 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."

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>Dental hygiene</td>
</tr>
<tr>
<td>89</td>
<td>Orthodontics</td>
</tr>
<tr>
<td>90</td>
<td>Periodontics</td>
</tr>
<tr>
<td>92</td>
<td>Periodontics</td>
</tr>
<tr>
<td>111</td>
<td>Preventive and Community Dentistry</td>
</tr>
<tr>
<td>112</td>
<td>Dentistry Nondepartmental</td>
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<tr>
<td>114</td>
<td>Family Dentistry</td>
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<tr>
<td>7C</td>
<td>College of Education</td>
</tr>
<tr>
<td>7D</td>
<td>Counseling Education</td>
</tr>
<tr>
<td>7E</td>
<td>Educational Administration</td>
</tr>
<tr>
<td>7F</td>
<td>Early Childhood and Elementary Education</td>
</tr>
<tr>
<td>7F and 7H</td>
<td>Foundations, Postsecondary, and Continuing Education</td>
</tr>
<tr>
<td>7P and 7W</td>
<td>Psychological and Quantitative Foundations</td>
</tr>
<tr>
<td>7S</td>
<td>Secondary Education</td>
</tr>
<tr>
<td>7U</td>
<td>Speech Education</td>
</tr>
<tr>
<td>7X</td>
<td>Education Interdisciplinary</td>
</tr>
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<td>51</td>
<td>College of Engineering</td>
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<td>52</td>
<td>Biomedical Engineering</td>
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<tr>
<td>55</td>
<td>Chemical and Materials Engineering</td>
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<tr>
<td>53</td>
<td>Chemical and Materials Engineering</td>
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<td>54</td>
<td>Environmental Engineering</td>
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<td>55</td>
<td>Electrical and Computer Engineering</td>
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<td>56</td>
<td>Industrial and Management Engineering</td>
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<td>57</td>
<td>Engineering CORE</td>
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<td>58</td>
<td>Mechanical Engineering</td>
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<tr>
<td>51 College of Law</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>College of Liberal Arts</td>
</tr>
<tr>
<td>BGS</td>
<td>Bachelor of General Studies Courses</td>
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<td>L</td>
<td>Lakeside Laboratory</td>
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<td>1A</td>
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<td>1B</td>
<td>Elements of Art</td>
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<tr>
<td>1C</td>
<td>Ceramics</td>
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<td>1D</td>
<td>Design</td>
</tr>
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<td>1E</td>
<td>Art Education</td>
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<td>1F</td>
<td>Drawing</td>
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<td>1G</td>
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<td>1H</td>
<td>Art History</td>
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<td>1I</td>
<td>Multimedia</td>
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<td>1J</td>
<td>Photography</td>
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<td>1K</td>
<td>Printing</td>
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<td>1L</td>
<td>Printing</td>
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<td>1M</td>
<td>Sculpture</td>
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<td>1N</td>
<td>Sculpture</td>
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<td>1P</td>
<td>Art Interdepartmental Course</td>
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<td>2</td>
<td>Botany</td>
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<td>3</td>
<td>Speech Pathology and Audiology</td>
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**French**

- Nondepartmental Courses
- Interdisciplinary Courses
- Geography
- German
- Dutch
- Greek
- Open Major
- History
- Home Economics
- Italian
- Journalism and Mass Communication
- Latin
- Library and Information Science
- Applied Mathematical Science
- Computer Science
- Mathematics
- Statistics and Actuarial Science
- Military Science
- Aerospace Military Studies
- Museum Training
- Musical Philosophy
- Physical Education
- Physical Education and Dance
- Dance
- Physics and Astronomy
- Political Science
- Psychology
- Religion
- Literature, Science, and the Arts
- Sociology
- Spanish
- Communication and Theatre Arts
- Broadcasting and Film Communication
- Rhetorical Studies
- Dramatic Art (Theatre)
- Zoology
- Portuguese
- Asian Languages and Literature
- Japanese
- Russian
- Social Work
- Geography
- American Studies
- Global Studies
- Comparative Literature
- Science Education
- Social Studies
- Urban and Regional Planning
- Linguistics
- Recreation Education
- Anthropology
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Services for Students

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 with open majors or declaring preprofessional majors are assigned advisers in the Undergraduate Academic Advising Center. Students in professional colleges (Business, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine) are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

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

Undergraduate Academic Advising Center
Professional advisers at the Undergraduate Academic Advising Center are trained to help students who wish to explore more than one field of study as they select career paths and make academic plans appropriate to their interests. Advisers are conveniently located in student residence halls.

Collegiate Advisory Offices
Each of the undergraduate colleges of the University also maintains an advisory office. These offices are available to all students to assist with questions concerning academic majors and course requirements, grading options, career and graduate plans, and other items of concern. They assist students who wish to change advisers and/or majors, and they also act on student complaints.

Admissions
Inquiries about admission to any college of the University, applications for admission to any college of the University, transcripts to support transfer applications, and requests for evaluation of transfer credit should be sent to the Office of Admissions.

Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the center provides information about campus and community activities and University facilities and operations, refers businesses to appropriate campus and community resources, compiles the Master Calendar of campus events, maintains the Housing Clearinghouse which provides up-to-date listings of available rental units, city and campus maps, lists of restaurants, 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 (OCPSA) provides diverse and balanced programs and activities for the Iowa Memorial Union and the campus as a whole and for the Iowa Memorial Union, and assists students and student organizations. Students are welcome to seek guidance from professional advisers in OCPSA about how they can become involved in and find organizations suited to their interests. Students who wish to form new groups or organizations with special needs can request guidance from OCPSA staff. Workshops and a well-stocked resource center are available to student organizations.

Campus programming and planning special events are ongoing tasks for program advisers and students and include planning traditional events, such as Homecoming and Riverfest, as well as new campus programs.

OCPSA also sponsors the Art Resource Center, the Recreation Area, the Student Activities Center, the University Box Office, SCOPE, and Union Board, all in the Iowa Memorial Union.

University Careers Office
Placement
The University Careers Office provides job placement and related assistance for seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Assistance includes individual consultations with advisers and
providing seminars for developing resume preparation, job hunting, and interviewing skills; a resume writing service; and information on unemployment and salary trends. On-campus interviews with prospective employers and a subscription to the job placement service. Additional information about various courses is available for student use in the Employment literature room. This material provides background information about organizations offering the major field of study and courses related to it. The Career Center provides advising services to help students with their career goals, interests, education, work, and lifestyle preferences, and develop appropriate strategies for achieving their immediate and long-term career objectives.

Cooperative Education

The Career Center offers career planning and decision-making process. Individual advising and seminars help students define their interests, abilities, values, work and life-style preferences, and career goals. Advisors also help students explore occupational information, investigate career options, and develop appropriate strategies for achieving their immediate and long-term career objectives.

Cooperative Education

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

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Community College Affairs

The Office of Community College Affairs (OCCA) provides a variety of services to students transferring from community colleges. Students are encouraged to contact the Office whenever questions arise concerning University services and procedures, the campus environment, or particular transfer policies. Each semester, OCCA conducts workshops to assist new transfer students in making smooth, effective transitions to the University. Programs are conducted both at the University of Iowa and at community college campuses at the request of the participating college. In addition, OCCA develops and distributes several publications useful to transfer students. OCCA also coordinates a computerized system of information regarding course equivalencies in fields of study. This system contains information about programs in various baccalaureate majors.

Cooperative Education

The Cooperative Education office works with students who want to gain internship experience relevant to their academic and professional plans. Cooperative Education internships encourage students to apply what they are learning in a supervised work environment. Students must meet the eligibility requirements of their academic department or college and receive faculty approval to participate. Opportunities are available year-round to undergraduate and graduate students in a wide variety of organizations throughout the nation.

Counseling Service

The University Counseling Service is a professional approach to advanced doctoral students offers vocational, educational, and personal counseling and therapy in individual or group sessions. It also offers a number of workshops, and consultation activities. These services are available to students without cost.

Dental Service

The dental clinics at The University of Iowa College of Dentistry are primarily for educational purposes. All students of the University and all students who are registered at the University may receive treatment at the college and will be billed the same if they are not registered at the University. The University College of Dentistry is not affiliated with the University Student Health Service and is not responsible for any treatment rendered, and patients are to pay cash.

Evaluation and Examination Service

Evaluation and Examination Service duplicates, scores, and analyzes many course examinations; helps faculty develop and improve their classroom tests by providing analyses of the results of examinations, helps faculty develop problem sets with particular project requests; such as teacher certification or evaluation and development; conducts institutional research projects and provides consulting services on questionnaire and survey design; and advises members of the University's required and optional tests for entering students, and is a center for many national testing programs, including the American College Testing (ACT) Program, Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admissions Test (GMAT), Graduate School Foreign Language Test (GFSLT), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), Miller Analogies Test (MAT), and College-Level Examination Program (CLEP).

Health Service

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

High School-College Relations

Administered as a part of the Office of Admissions, the High School-College Relations office implements all schedules and relations with secondary schools and institutions of higher education.

Intercollegiate Athletics for Men

The University 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 twelve members from the University's teaching and administrative staff, two University alumni, one representative of the University Staff Council, and two students.

Intercollegiate Athletics for Women

The University also sponsors nationally competitive intercollegiate athletic 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 Intercollegiate Conference of Faculty
Representatives (Big Ten Conference) and the National Collegiate Athletic Association (NCAA). Scholarships are available in all ten programs to quality student-athletes. In 1982 women's intercollegiate athletics was included under the University Board in Control of Athletics.

Intramural Sports and Recreational Activities

Through the University's Division of Recreational Services, all interested students have opportunities to participate in more than 20 different intramural and extramural activities. (See "Recreational Services" in the "General Services" section of the Catalog.)

International Education and Services

The Office of International Education and Services (OIES) provides services and facilities and organizes extramural programs for both foreign and domestic students and faculty. The OIES maintains a library on opportunities for study, work, and travel in other countries, including information about foreign universities and study-abroad programs open to UI students. The OIES helps students to find study-abroad programs to complement their course of study. The OIES helps to assure that students receive the correct credit. Students may also obtain information and applications for the Fulbright, Marshall, and Tubingen awards at the OIES.

Foreign student advisors in the OIES provide information, counseling, and services in the areas of orientation, immigration regulations, financial aid, and living with foreign governments and sponsors. Advisors help with problems and questions in most areas of concern and issue letters of support or support educational programs, such as the Host Family Program, the Conversational English Program, and lunch-time discussions to foster constructive interaction between students and scholars from other countries and their domestic counterparts.

The OIES operates the Iowa International Center, on the second floor of the Jefferson Building, where students, staff, and community members hold meetings, seminars, and social activities with an international focus.

Iowa Memorial Union

The Iowa Memorial Union is the hub of student life. Its facilities include the Campus Information Center, the University Book Office and other cashiering service, the Office of Campus Programs and Student Activities; a coffeehouse with live entertainment; the BPiu Films; a variety of food service; a recreation area with bowling, billiards, and electronic games; an arts and craft resource center; a bookstore; rooms for lectures, concerts, meetings, and social events; art and sculpture display areas; and, in the adjoining Iowa House, 110 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, University Careers Office, the Office of Cooperative Education, the Center for Conferences and Inventions, a cyber cafe, and a barber shop.

Orientation Services

With the aid of representative student faculty, and staff personnel, Orientation Services designs and conducts a wide variety of year-round programs to help new freshmen, transfer students, and graduate students with their transition to University life. Orientation is intended not only to assist new students with scheduling building, academic advising, and registration procedures, but also to acquaint them with the educational facilities, student services, and other available sources of help. In addition, Orientation's 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.

Reading Lab

The Reading Lab of the Rhetoric Program provides one-on-one instruction of individualized and class instruction for any University of Iowa student who wishes to improve their college-level reading performance. Students are advised on how to specify what reading problems they have; teachers adapt practical materials and methods to help remedy those problems. Students may work on improving study skills, including library use, test-taking abilities, command of vocabulary, critical reading, and speed and comprehension reading.

The Reading Lab offers one service course, Voluntary Reading Lab, which meets twice a week for 13 weeks. Students may attend more or less often if they wish, and many enroll at any time during that time if they feel they need reading help. The lab service course carries no credit and students assign no grade. Ordinarily, there are no outside assignments. Developmental reading work is restricted to lab hours, and makes extensive use of lab materials and the students' own texts in other courses.

The lab also offers: 108 Rhetoric, a one-quarter, two-credit course for students who need exceptional help preparing for college-level reading and BP 20 Advanced Reading Comprehension, BP 20: Speed Reading, and BP 40 Practical College Vocabulary independent-free two-month courses for one semester hour of credit each.

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 student academic records; issues official transcripts and verifications; assists students in obtaining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations; provides assistance to students concerning Selective Service and military service matters; and helps student veterans with University application and enrollment procedures, and receipt of Veterans Administration benefits.

Services for Handicapped

The University of Iowa is committed to making its facilities, services, and programs freely accessible to people with disabilities. The Office of Services for Handicapped (OSH) provides services to students with both visible and non-visible disabilities. Special services for 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 all students.

OSH works closely with University faculty and staff to ensure that students receive the maximum benefits from their experiences 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. OSH helps students on an individual basis to locate the type of assistance appropriate to their needs, whether security tutors or personal attendants or finding tape recorders or emergency toaster wheelchairs. OSH works closely with the Recreational Services to provide activities ranging from picnics to bowling and basketball. Workshops on numerous topics such as career exploration and social skills are also offered by OSH.
Special Support Services

The Office of Special Support Services (SSS) was established to make it possible for more students from economically and educationally disadvantaged or culturally different backgrounds to receive a higher education at The University of Iowa. Special Support Services provides academic, financial, and personal assistance programs.

Special Support Services is made up of the following subprograms: The Upward Bound Project; the Undergraduate Educational Opportunities Program; New Dimensions in Learning; The Educational Opportunities Professional and Graduate Programs; the Afro-American Cultural Center; and the Chicano-Native American Cultural Center.

Speech and Hearing Clinic

The University of Iowa Speech and Hearing Clinic provides services for speech, language, and hearing problems. Any University student may receive most services without charge. Services include diagnostic evaluations, consultations, individual clinic sessions, small group sessions, and referrals to other clinics as needed.

Sponsored Programs

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

The division also publishes Research and Graduate News, a section in a weekly newsletter called FYI which contains program and deadline information and carries a special section devoted to sources of funds for graduate study and research. The newsletter is available at departmental offices; further inquiries about graduate opportunities are welcome at the resource center.

Transcripts

Students who have completed work at The University of Iowa may obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $3 for the first copy, $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.

Veterans Services

The Office of Veterans Services is part of the Office of the Registrar, and serves veterans, dependents of veterans, dependents of servicemen and servicewomen in matters relating to Veterans Administration educational benefits, University registration, and study at the University.

Women's Resource and Action Center

The Women's Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of university and community women. The WRAC provides a resource for many women's organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support groups for women; offers women one-on-one problem solving sessions; and publishes a newsletter nine times a year.

The WRAC houses the Sojourner Truth Women's Resource Library of books and periodicals on a wide range of women's topics, and maintains an extensive information and referral service. For those individuals dealing with sexual discrimination and sexual harassment, WRAC acts as an advocate and provides emotional and informational support. The WRAC's Rape Victim Advocacy program provides a 24-hour crisis line for victims of rape, sexual assault, and incest. WRAC also maintains information and speakers bureau.

Writing Lab

The Writing Lab provides individualized writing experiences for any University student who feels inadequately prepared for college writing. Lab students discuss their work in personal conferences with teachers who offer comments and suggestions to help them become more perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and concisely.

Students may enroll for no-credit work in the Lab throughout the semester, or register for the credit course (10:9 Rhetoric) before or after taking a required rhetoric course, or transfer to 10:3 Rhetoric from another rhetoric course after discussing their writing problems with their rhetoric teacher and the director of the Writing Lab.
Fair Housing Policy

The following is the University’s statement on fair housing practices: "It is and shall be the firm policy of the University that householders shall rent to all students on the basis of their individual merits as persons, without discrimination on the basis of race, creed, color, or national origin." Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without distinction due to race, color, or ancestry, except in certain instances involving owner-operator dwelling units. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.

University Residence Halls

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

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

Single, double, triple, and quadruple rooms with full or wall-board are available in the Goodwin Ave Residence Halls (east side of the campus), which include Hillcrest, Quadrangle, Westfawn, South Quad, Riever, and Stater halls, and in the Clinton Street Residence Halls (east side of the campus), which include Burge, Carrier, Deum, Mayflower, and Stanley halls. There are lounges, study areas, game rooms, coin laundry facilities, and small stores in or available to each residence hall. Computer terminals, reference materials, 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 house hall coordinator, and there is a student resident assistant in each living unit. All students are encouraged to participate in residence hall government to plan programs and discuss issues. Student- and staff-related programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Several courses are taught in residence halls. Academic advising centers and tutorial sessions are also available.

Students not living in residence halls may purchase full or partial board contracts.

Applications and Assignments

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

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

Roommate assignment is made without regard to race, color, 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. It becomes binding approximately ten days after the University Housing Assignment Office issues notice of the acceptance of the contract and assignment of accommodations.

Upon written request, the $50 advance payment will be 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 1983-84 academic year are $1,976 for a double room and $1,614 for a triple, with full board. Rates for the several amenities and board options vary according to the accommodations until 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 Pilkington complexes.

Rents for 1983-84 range from $132.25 to $135.75 per month for one-bedroom units and from $157.50 to $261.00 for two-bedroom units. Not including gas, electricity, and telephone. All units are unfurnished. Rates are subject to change annually.

Family housing is assigned in the order applications are received. Assignments are contingent on the student’s meeting all University admission requirements. Applications may be filed before completion of admission, but will not be accepted more than a year in advance.

Off-Campus Housing

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

Fraternities

Nineteen undergraduate and six professional fraternities operate chapter houses at Iowa. Houses accommodate 35 to 45 men.

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

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

Sororities

The 15 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Alpha Delta Phi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Delta Tau, Sigma Kappa, and Zeta Tau Alpha.
Financial Aid

All financial assistance available to University of Iowa students from general University sources is administered by the University's Office of Student Financial Aid. Students may receive aid in the form of scholarships, grants, loans, and/or part-time job placement. Students receiving financial aid must maintain satisfactory academic progress as determined by the Office of Student Financial Aid.

Except for merit awards based solely on achievement, all assistance administered by the Office of Student Financial Aid is awarded on the basis of demonstrated need.

Application Procedures

To be considered for aid, the student must complete all University admission application procedures, must be accepted for admission to the University, and must submit a family financial statement through the College Scholarship Service (Box 380, Berkeley, CA 94777) or ACT Financial Aid Services (Box 1000, Iowa City, IA 52243), requesting that a copy of the statement be sent to the University.

When it receives a copy of the statement, the Office of Student Financial Aid supplies the applicant with instructions and forms for applying for aid at the University.

Except for a few designated aid programs requiring special applications, the student needs submit only one application each year to be considered for all forms of assistance administered by the Office of Student Financial Aid.

The application priority deadline is March 1.

The Presidential Scholars' Program

The University annually awards $1,500 Presidential Scholarships, renewable for a maximum of four years of University enrollment, to 15 Iowa high school students in recognition of their outstanding academic achievements.

Fifty Darrin's Scholarships, also merit based, will be awarded. There will be $650 freshman-year non-renewable scholarships.

The Iowa Center for the Arts Scholarship

The Iowa Center for Arts Scholarship is awarded primarily on the basis of artistic performance. Each department (art, dance, drama, and music) awards one scholarship to an entering freshman. The Scholarship is the highest award that the Center offers to entering freshmen. A maximum of four $1,500 freshman-year non-renewable awards of $750 per semester will be awarded. Each department sets its own eligibility and selection criteria and there is no Iowa residency requirement.

The University of Iowa Minority Achievement Scholarship Program

The University of Iowa Minority Achievement Scholarship Program recognizes and encourages promising minority students who have demonstrated academic excellence in high school. Ten four-year scholarships for $1,500 per year are awarded.

National Merit Scholarships

The University sponsors a number of National Merit Scholarships for entering freshmen who have participated successfully in the National Merit Scholarship competition. Based on financial need, these awards range from $250 to $2,500 per year and are renewable for a four-year period.

Freshman Honor Scholarships

Enrolling freshmen who qualify for participation in the University’s Honors Program by achieving a composite ACT score of 28 or above are recognized as Freshman Honor Scholars and receive $100 Freshman Honor Awards.

Transfer Honor Scholarships

Iowa community college students transferring to the University with a 3.0 grade-point average or above qualify for $100 Honor Scholarships.
General Scholarships
To qualify for the Pell Grant Scholarship assistance, an entering freshman must apply for financial assistance, show a need for assistance, and either achieve an ACT composite score of 26 or above or rank in the upper 10 percent of his or her high school class. As upperclassmen or a transfer student must have at least a 3.0 cumulative grade-point average to qualify for the initial scholarship award, and must maintain at least a 3.0 average to continue the scholarship.

LaVerne Noyes Scholarships
Noyes Scholarships, covering basic fees in the colleges of Business, Administration, Liberal Arts, Nursing, and Pharmacy, are available to United States citizens directly descended from army or navy veterans of World War I. Awards are based on need and scholastic achievement. Special application forms are available from the Office of Student Financial Aid.

Pell Grants
Undergraduate students applying for University financial aid must also apply for entitlement to federal Pell Grant assistance. The United States Department of Education determines eligibility for a Pell Grant award. The maximum award is $1,363 per academic year, minus the amount of the applicant's capped family contribution. The student may use his or her CSS or ACT financial statement to apply for Pell Grant eligibility, or may obtain an application for Federal Student Aid from any high school or from any college or university financial aid office.

Supplemental Educational Opportunity Grants (SEOG)
The SEOG program provides federal aid to students with exceptional need. The maximum grant is $800 per academic year. There are no specific academic requirements for an SEOG award, but the applicant must show academic or creative promise and must be enrolled at least half-time. No special application is required.

National Direct Student Loans (NDSL)
The NDSL program is the University's largest source of long-term student loans. Undergraduates may borrow up to $800 a year and $12,000 overall. NDSL assistance is available to students who are citizens or permanent residents of the United States and who are enrolled at least half-time. Six months after the recipient ceases to be at least a half-time student.

Guaranteed Student Loans
Under the Iowa Guaranteed Student Loan Program, undergraduate students may borrow up to $2,500 a year, graduate students up to $5,000 per year. The student negotiates the loan directly with a commercial bank, credit union, savings and loan association, or other eligible lending institution, and begins repayment, at 7.9 percent interest, when he or she ceases to be at least a half-time student.

Health Professions and Nursing Student Loans
These programs assist United States citizens and nationals studying full-time to be doctors of medicine or dentistry, or studying full-time toward degrees in pharmacy or nursing. Amounts available depend on federal funding. Loan recipients make repayment arrangements with the University's Student Loan Accounting Office when they graduate or terminate full-time registration. The interest rate is 9 percent on the Health Professions Loans and 8 percent on the Nursing Student Loans.

Part-Time Jobs
More than 10 percent of the students attending the University have part-time jobs. Most of the students who have part-time jobs secure them through the Office of Student Financial Aid. The most numerous opportunities for part-time work are in University food service, hospitals, and libraries. Hours range from 10 to 20 per week. For beginning students, the recommended maximum is 12 hours per week.

College Work-Study
The federal College Work-Study Program provides part-time work through the Office of Student Financial Aid. The most numerous opportunities for part-time work are in University food service, hospitals, and libraries. Hours range from 10 to 20 per week. For beginning students, the recommended maximum is 12 hours per week.
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 are found the academic programs, clinics, facilities, and service functions involved in preparing 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 the search for entirely new knowledge.

As soon as they have acquired basic knowledge in their fields, health profession students begin to learn by doing, following the examples and directions of skilled practitioners who teach while providing health care for thousands of patients from the community, state, and region. The University of Iowa Health Center is thus simultaneously a center of learning and of service. It is one of the most advanced, comprehensive health science centers in the United States.

It shares many skills off campus through cooperative programs with other Iowa colleges and community colleges, and through a variety of continuing education programs for health practitioners—many of whom also come to the Iowa campus to update their knowledge through conferences, clinics, and "refresher." Programs, facilities, and courses of the colleges of Dentistry, Medicine, Nursing, and Pharmacy are described elsewhere in this Catalog. Operations of the University Hospitals and Clinics are described below.

The University of Iowa Hospitals and Clinics

General and essential services for statewide health services. John H. Collins

Deputy Administrator: Clifford M. Ringeisen

Special assistant to the director: Douglas R. Williamson

Senior assistant directors: David E. Wood, John H. Sides

Assistant directors: Mary A. Beck, Carol E. Steen

Assistant to the director: William H. Heallen, Gary S. Lewis, Ann M. Rodgers

Clinical service heads: Dr. John H. Rine, Anesthesiology: Dr. Donald B. Olson, Dentistry: Dr. John S. Struass, Gynecology: Dr. Ronald D. Stover, Family Practice: Dr. Frances A. Lockwood, Internal Medicine: Dr. Maurice W. Tykocin, Neurology: Dr. Robert A. Phillips, Orthopedics and Gynecology: Dr. Charles D. Phillips, Orthopaedics: Dr. Reginald Cooper, Ophthalmology: Dr. Brian Mcleroy, Otolaryngology and Head and Neck Surgery: I. H. Banker, Ophthalmology: Dr. Fred Schalit, Pediatrics: Dr. George W. Stover, Psychiatry: Dr. Edmund A. Fairman, Radiology: Dr. Robert Corp, Surgery: Dr. Donald A. Cup, Urology

Largest university-owned teaching hospital in the nation. The University of Iowa Hospitals and Clinics provide the clinical base of 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 775 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

There are 1,029 beds in the hospital complex, accommodating some 40,000 admissions annually. In addition, 135 specialty clinics accommodate another 353,000 ambulatory patients each year. Nearly 10,000 major surgical procedures are performed annually in the hospitals 20 major operating rooms. Approximately 3,000 infants are delivered every year.

Highly specialized health services—for example, the burn unit, heart catheterization facilities, nuclear magnetic resonance, neonatal intensive care unit—are easily accessible to Iowans who reside in communities without such resources. The hospitals' transportation fleet of 15 vehicles travels nearly two million passenger-miles each year, transporting 10,600 Iowans. The Air-Care Emergency Helicopter Service carries specially trained medical and nursing teams to the most critically ill and injured, and to transport them to the hospitals for treatment. Many Iowans owe their lives to this service.

More than 5,600 hospital staff members are involved each day in providing professional and support services needed to care for approximately 2,700 patients. The hospitals' clinical staff includes more than 425 faculty physicians and dentists. The hospital's house staff numbers over 500 resident and fellow physicians and dentists. The hospitals' Department of Nursing is staffed by more than 1,200 professional nurses.

Other hospital staff members annually provide about 170,000 X-ray examinations and treatments, conduct more than 3,4 million laboratory tests, fill more than 1.5 million prescription orders, render more than 70,000 physical therapy treatments, and prepare nearly 38,000 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, coronary care, and urology units. A seven-story, $15 million Boyd Tower addition went into service in 1978, providing expanded and replacement facilities for a variety of
inpatient and outpatient services. The $48 million Roy J. Carver Pavilion, named in honor of a $2 million gift from the late Muscatine in-law family, provides facilities for a multi-specialty inpatient and emergency treatment center; physical therapy department; occupational therapy, and nutrition laboratory, inpatient and outpatient clinic, and various other services. The hospital is the central point of medical inpatient units, radiology and psychiatry clinics, and laboratories of the Department of Pathology.

The $35 million first phase of the John W. Collum Parkview Pavilion is planned for the hospital's central location—opened in 1981 to consolidate the services of the Department of Pediatrics Iowa Children's Health Care Center and provide facilities for the Department of Surgery. A second phase of the Collum Pavilion, scheduled for completion in 1986, will house a new burn center, digestive disease center, cardiac care center, and units for neurosurgery patients.

University Hospitals and Clinics collaborate in conducting accredited health professional education programs in dentistry, radiologic technology, medical technology, nuclear medicine technology, hospitals pharmacy, physical therapy, physician's assistant, and cytotechnology, and provides supervised clinical settings for Kenwood Community College programs or nursing education, orthopaedic physiotherapist's assistance, operating room technology, and respiratory therapy. Of the programs cited above, those conducted jointly by the colleges of medicine and nursing are described in the appropriate college sections of the catalog. The Department of Dental Health Education provides the major academic programs in the dental sciences了些许外, the University also provides a wide variety of services related to water, wastewater, and air quality monitoring and analyses; pest control and herbicides; soil and mineral and metal analyses; and disease surveillance.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analyses. It is an accredited industrial hygiene laboratory. It holds an interstate license for the diagnostic services involved in blood lead screening, and also for screening for monosaccharide errors in the newborn.

The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsoring agencies of the Iowa State Department of Health, which provides personnel, salaries, and office 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 teen 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 kits for schools to reward parents for their need for regular dental care for children.

Council on Speech Pathology and Audiology

The council coordinates clinical services in speech pathologist and audiologist training, unique service in the University of Iowa Hospitals and Clinics. The Iowa City Veterans Administration Medical Center, and the Department of Speech Pathology and Audiology.

Health Occasions Education

Through this program, the University collaborates with the state Department of Public Instruction in providing counseling and advisory services, educating teachers, conducting research, and developing curricula and instructional material for health occupations programs conducted for the most part by Iowa's 15 area community colleges, but also for a growing number of high schools. The Health Occupations Education staff also assists 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 departments in the university library system, the Health Sciences Library contains more than 185,000 volumes and receives more than 2,850 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space so accommodate approximately 1,100 people. Special features of the library range from computerized access to the latest health sciences literature, via MEDLINE and other data bases, to the rare books (some dating back to the sixteenth century) in the John Martin Rare Book Room.
Regional Child Health Specialty Clinics

The Regional Child Health Specialty Clinics (CHSC) is an organization which administers several state-wide health services for children. Among these are the Genetic Consultation Service, Coronary Heart Disease Prevention Program, Cystic Fibrosis Program, Childhood Cancer Diagnostic and Treatment Program, Rural Collaborative Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Infant Newborn Screening Program, Community Child Health Center Program, and a program of Regional Mobile Health Clinics.

At Regional Mobile Health Clinics conducted in communities throughout the state, and at University of Iowa Clinics, Regional Child Health Specialty Clinics provides Iowa residents under age 19 with diagnosis and evaluation services in pediatrics, orthopedics, otolaryngology, speech pathology, audiology, and clinical and educational psychology. CHSC helps communities sponsor child health centers in which a number of new health programs are conducted. CHSC administers demonstration services on special health problems related to handicaps such as muscular dystrophy, mental retardation, phenylketonuria, and subsides a University of Iowa graduate training program in audiology and speech pathology.

University Hospital School

A University-affiliated program dealing with the problem of developmentally disabled children and young adults, the University Hospital School serves as the focus for 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 University Hospitals and Clinics.

The interdisciplinary team approach provides services including the fields of medicine, dentistry, nursing, nutrition, speech and audiology, physical and occupational therapy, art, music therapy, psychology, social work, special education, prevocational and vocational activities.

Outpatient services provide comprehensive evaluations and follow-up of infants, children, and young adults who have problems and/or disabilities that affect their development. Programs of education and therapy are planned in conjunction with the patient, when appropriate, and with the parents, and community-based service providers. The outpatient services include a number of special clinics (Child Development Clinic, Meningomyelocole Clinic, Genetic and Metabolic Disorders Clinic, Infant and Young Child Clinic, Weight Management Clinic, Child and Young Adult Clinic) in which specially trained staff address specific problems.

Intents, 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 relatively specific goals that can best be accomplished on an inpatient basis. The staff coordinates educational services with the child's local school system in order to maintain continuity of services while the children are in this unit.

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

Close cooperation exists with the state Developmental Disabilities Council and other local agencies in providing training and technical assistance to their programs.

The laboratories of the Division of Genetics and Biochemistry of the Department of Pediatrics are also housed in the University Hospital School and are utilized extensively in its research, training and service programs.

University Speech, Language, and Hearing Clinic

Located in the Wendell Johnson Speech and Hearing Center, the clinic provides out-clinic evaluation and consultation for individuals with speech, language, and/or hearing problems. Day-clinic habilitation or rehabilitation services are provided for individuals who can come to the clinic for such services, and a summer residential program for children with speech, language-learning, hearing, and/or reading problems; the training for students in speech pathology and audiology.

Iowa City Veterans Administration Medical Center

Medical students and residents receive their clinical training in this 327-bed hospital. University of Iowa Health Care facilities include the University of Iowa Hospital and Clinics, the Veterans Administration Medical Center, and a number of other health care facilities. The University of Iowa Hospital and Clinics, the Veterans Administration Medical Center, and a number of other health care facilities. The Veterans Administration Medical Center, which is closely affiliated with the University of Iowa Health Science colleges, offers unique training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, and applied immunology.
Research Activities

The University recognizes that creative activity is an indispensable function of its teaching and research missions.

The University holds that the term "research" applies to creativity in all fields. Imaginative originality, whether in the fine arts, in the sciences, in the humanities, and two from the faculty at large.

The Office of the Vice-President for Educational Development and Research maintains an overview of the many individual research commitments of the institution and actively promotes, in a variety of ways, the research mission of the University and the educational development efforts of the faculty.

The University Research Council assists the vice-president for educational development and research in a regular advisory capacity. The Council consists of ten faculty members with widely recognized personal involvement 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, and the humanities, and two from the faculty at large. The Council gives regular consideration to such matters as the establishment of general policies with respect to the University's research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional 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 appropriately involved officers and committees of the University, the Office of the Vice-President for Educational Development and Research currently supports the following programs:

Junior Faculty Research Support

A limited amount of money is available each year from the National Institutes of Health for the support of the initial research efforts of junior faculty (other than those in the colleges of Dentistry, Medicine, and Pharmacy) who wish 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 which will assist the faculty member in conducting an initial exploration of a hypothesis on which she or he believes may lead to the development of a full-fledged program of research.

Incidental Grants

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

Services

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

Central Research Facilities

To maintain state-of-the-art resources for key research activities within the University, selected facilities are identified for centrally supported development. Such facilities are available to all interested graduate students and faculty, and currently include:

- **Electron Probe Microanalysis (EPMA) Facility**
  - The EPMA Facility possesses instrumentation for the chemical microanalysis of solid specimens and/or bulk analysis of solid, liquid, or powdered specimens. Primary instrumentation includes an extensively updated Applied Research Laboratories EMX-5M electron microprobe X-ray analyzer with three crystal spectrometers, a SIJGd solid state
Flow Cytometry Facility

The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, molecular biology, and cell genetics. It is equipped with an advanced fluorescence-activated cell sorter (Beckton-Dickinson FACSort) which is programmed to permit multiparameter data acquisition and storage (FACSort Software). A flow cytometer will measure any optically detectable cellular property, such as fluorescence or size, to generate population distributions. Up to four parameters can be concurrently evaluated per cell. A variety of cellular macromolecules can be thus quantitated. Detectable parameters include two spectral regions of fluorescence, narrow and wide angle light scattering, and fluorescence polarization anisotropy. Optical excitation is done with an argon ion laser with ultra- violet capability. The instrument will physically isolate any red fluorescent cell population to yield viable cells for subsequent experimental use. The facility provides all needed supporting equipment for staining cells with fluorochromes, tissue culture, and fluorescence and phase microscopy. It is housed in the Medical Laboratories of the College of Medicine. Educational tours are conducted upon request.

Laser Facility

The Laser Facility consists of a wide variety of modern laser instrumentation. In particular, state-of-the-art CW Argon ion and Kr-iodide lasers (spectral line fluorescence or ultraviolet capabilities) are employed, either alone or in combination with a Tunable Laser System throughout the visible and near infrared region of the spectrum. Each CW Laser is routinely operated single mode with a width ten-thousandth of a reciprocal centimeter. This instrument is installed in a large, air-conditioned, specifically laboratory which occupies the entire floor of the southwest wing of the Chemistry-Botany Building. It includes a mechanically and thermally stable 40-foot tunnel with an array of work benches to accommodate up to several students at a time.

High Field Nuclear Magnetic Resonance (NMR) Facility

A recently acquired, high-resolution Bruker WM-360 spectrometer forms the basis for the High Field NMR Facility. The persistent magnet operates at 84.6 kilogauss, and a frequency of 360 MHz is utilized for proton relaxation. Very high spectral resolution and sensitivity can be achieved for study of complex molecular solution. Multinuclear, variable temperature, and selective pulse experiments are possible. Both high disc ana>Roxy disc systems provide for data storage. Either digital or standard X-Y plotting is available. NMR spectra are recorded in 5 mm sample tubes, carbon-13 spectra are obtained from 5 mm or 10 mm tubes, and heteronuclear spectra are observed from 10 mm tubes. A Fourier transform computer and the program windows is the major research area of the frequent user after an appropriate training period. The facility is located in the northwest ground floor area of the Chemistry-Botany Building.

Computing Center

The Gerhard P. Weeg Computing Center provides research and tutorial facilities to computing facilities to all students, faculty and staff of the University. Located in the Lindquist Center, the Weeg Computing facilities are accessible through the many terminals, both batch and interactive, conveniently distributed around the campus. The Center maintains systems capable of an extremely wide variety of applications, and provides network connections with on-campus facilities. Supported applications software covers such diverse areas as statistical and numerical analysis, financial modeling, text editing and formatting, graphics, and data base management. In addition to terminals and general-purpose computing systems, the Weeg Center has facilities for producing manuscript-quality printed and graphic output. The Center provides users with non-craded educational services and software. This is accomplished by providing help desk support, data base access, and on-line assistance on an as-needed basis. Detailed information on computing facilities and related facilities, is available in the information center, located in the Lindquist Center.

Video Center

The University Video Center provides research and tutorial facilities, including those necessary to sustain and augment the University of Illinois. It coordinates video equipment purchase requests and provides training on the efficient use of video equipment. It also coordinates video maintenance and system design and maintains guidelines for equipment standardization.

Sponsored Programs

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 and assist in the preparation of budget and cover material, and give
 editorial assistance to achieve effective organization and technical correctness in an application. The staff also assists in processing an application through the University and in locating appropriate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services for maintaining or increasing the rate of expenditure accounting.

University House

University House began in 1977 as a program dedicated to three separate but related missions. The first and most important is faculty development in general. To help faculty in their professional growth and advancement. University House provides, on the faculty campus, an environment free from distractions, in which faculty members can work—alone and together—on scholarly tasks in a congenial, supportive setting. It is also a place in which scholars from different disciplines can meet in easy interchange for mutual benefit.

University House sponsors many public lectures and conferences, visits by distinguished faculty from other campuses, and faculty seminars on a wide variety of topics. Faculty members in all disciplines are eligible for appointment and for participation in University House activities. Thanks to a large grant, University House has been able to offer a new experience for faculty and the other educational development activities jointly pursued by faculty members from the University and from the independent, four-year colleges of Iowa.

In addition to promoting faculty development in general, University House seeks to bring together university centers, institutes, committees, and other groups into common, interdisciplinary arrangements that foster the acquisition of external support for research, education, and appropriate service. University House has nearly six thousand square feet of office space on the Oakdale Hospital, including private faculty offices, several conference and study rooms, and a lounge. Secretarial services are available. Located in the same building are a cafeteria, an auditorium, a large conference room, a copy center, a switchboard with a small, remote connection to the St. Paul Computing Center, a terminal with text-editing capabilities, and a full-time assistant for computer services. Photocopying and book delivery services are also available from University Libraries. The on-campus service connects University House with the main campus.

Center for Health Services Research

The Center for Health Services Research fosters a program of research and education in health care policy and management. Center staff include an interdisciplinary core of faculty associates drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Administrative Science, Administration, and Liberal Arts, as well as the University of Iowa Hospitals and Clinics.

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

Related Units

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

Institutes

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

Industrial Relations Institute
See the "College of Business Administration" section of the Catalog.

Institute for Economic Research
See the "College of Business Administration" section of the Catalog.

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

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

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

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

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

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

Centers

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

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

Center for Educational Experimentation, Development, and Evaluation
See the "College of Education" section of the Catalog.

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

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

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

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

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

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

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

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

Student Consulting Center
See "Statistics" in the "College of Liberal Arts" section of the Catalog.

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

Laboratories

Accident Prevention Laboratory
See the "College of Medicine" section of the Catalog.

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

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

Radiation Research Laboratory
See "Radiation Research Laboratory" in the "College of Medicine" section of the Catalog.

Social Science Data Archive
See "Political Science" in the "College of Liberal Arts" section of the Catalog.
Clinics
Child Development Clinic
Contact the Department of Pediatrics in the College of Medicine for information.

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

Iowa Pesticide Hazard Assessment Program
See the "College of Medicine" section of the Catalog.

Iowa Psychiatric Epidemiology Research Unit
Contact the Department of Psychiatry in the College of Medicine for information.

Social Science Data Archive
See "Political Science" in the "College of Liberal Arts" section of the Catalog.
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 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 physical center comprises many of the academic units in the Division of Fine Arts in the College of Liberal Arts, together with the Museum of Art, E. J. Noble Theatre, and Grapp Resource Hall, Harper Hall, the Opera Studio, and Voxman Hall in the School of Music and VanFoner Auditorium, the center’s largest showcase.

In addition to activities housed in these facilities, various educational programs in other parts of the 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 ever more important role in the quality and diversity of the center’s services to the people of Iowa.

School of Art and Art History

The University of Iowa School of Art and Art History has been a pioneering force in art in America for more than half a century. The original art building dates from 1938. Major additions were made in 1968-69, greatly extending classroom and studio spaces 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 Eva Drewelowe, who in 1924 became the first recipient of the Master of Arts degree in studio art at The University of Iowa.

The school’s Corroboree Gallery, located in South Hall (the old Music Building), features exhibitions of new and experimental works created at The University of Iowa by major visiting artists. The gallery presents lectures and performances which emphasize new concepts and directions in contemporary art.

Museum of Art

The University of Iowa Museum of Art provides an outstanding example of the enrichment of the arts through generous private support.

In the early 1960s, Owen and Leonie Elliott of Cedar Rapids offered to the University their extensive collection of nineteenth- and twentieth-century paintings, prints, antique silver, and rare jade, provided that a museum could 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 business firms contributed toward 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 industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1978. With the Carver Wing, the museum has 48,000 square feet of exhibition space in 16 galleries plus the behind-the-scenes work areas essential to support 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 include the Elliott Collection, nineteenth- and twentieth-century sculpture, drawings, photography, contemporary ceramics, and pre-Columbian art.

One of the most prized collections is the Stanney Collection of African Sculpture, a gift of Max and Betty Stanney of Muscatine. The addition of this collection gives the museum one of the leading university-based African art collections in the country.

The Print Study Room houses more than 2,000 prints representing major artists. The Lasansky Room houses a collection of prints and drawings created by printmaker Mauricio Lasansky, longtime professor of art at the University. Many Lasansky prints are gifts of Webster and Gloria Gelman of Iowa City.

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

University Theatres

The University Theatre Building houses the Division of the Dance Arts, the Department of Communication and Theatre Arts, and its home to the College of Communication and Theatre Arts. It is the home of the College of Communication and Theatre Arts. It is located on the west side of the Iowa City campus and is a major production center for the College of Communication and Theatre Arts. It is located on the west side of the Iowa City campus and is a major production center for the College of Communication and Theatre Arts.

School of Music

Opened in 1971-72, the School of Music has been designed for the University of Iowa. The school is a major production center for the College of Communication and Theatre Arts. It is located on the west side of the Iowa City campus and is a major production center for the College of Communication and Theatre Arts. It is located on the west side of the Iowa City campus and is a major production center for the College of Communication and Theatre Arts.

Hancher Auditorium

Hancher Auditorium, which opened in 1972, is a regional cultural resource of the finest magnitude. It seats an audience of 2,684. In its first seven seasons, the auditorium hosted world premieres totaling nearly 2 million people. The auditorium is fully accessible to the handicapped and provides wheelchair seating. Hancher has also established a hearing augmentation system which is available free of charge to patrons with hearing impairment.

In addition to performances by the various units of the Iowa Center for the Arts, the school produces major productions of plays, musicals, and operas, and offers a variety of other performing arts activities. The school is also the home of the Iowa City Community Theatre and the Iowa City Choral Society.

Dance

The University of Iowa Dance Program is housed in the School of Music and Dance. Dance faculty and students appear in their own productions during the year and participate with other units of the Iowa Center for the Arts in interdisciplinary projects and programs. The Dance Program is assisted by the frequent campus visits of professional dancers, choreographers, and leading dance companies from all over the country. The professional visitors come from all over the country and have included several lecture demonstrations and classes. The Dance Program is part of the University of Iowa and is the only dance program in the country that is located in a major university setting.

Broadcasting and Film

The Television Studio and the studios of radio station WUIK for KUOW are key classroom and laboratories for students in the broadcasting and film division of the Department of Communication and Theatre Arts. The entire community serves as the "location" laboratory for students in this division.
The Writing Programs

A longtime program of special distinction in the Department of English, the writers workshops encompass fiction, poetry translation, and playwriting. The workshops provide opportunities for talented writers to work and learn with established poets, novelists, and playwrights.

The International Writing program brings accomplished writers of many nationalities to the University for extended periods of new writing and translating their works into English and other languages.

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

Windhover Press

The skills of making books by hand—utilizing handmade paper, hand-wrought illustrations, hand-set type, hand-operated presses, hand-binding—may be learned in the workshop of the Windhover Press in the School of Letters.

The Windhover Press is one of the nation’s small company of distinguished hand presses. Its limited editions are frequently cited for their excellence by the American Institute of Graphic Arts, whose prestigious competitions include all of the major publishers in the country.
General Services

Children’s Reading Clinic

The Children’s Reading Clinic is located in the University of Iowa College of Education. It trains classroom teachers, supervisors, and consultants. The clinic provides training and consultation in child development and instructional materials that are adapted for children's needs and interests. During the academic year, the clinic offers a wide range of services, including assessment of reading abilities of school-age children, and to recommend and use instructional materials that are suitable for the child. The clinic staff members are committed to providing reading instruction for children who attend the clinic. The clinic also offers speech and hearing services through the University of Iowa Speech and Hearing Center. The clinic staff members work closely with teachers and other professionals to provide comprehensive services to children in need of reading instruction.

International Education and Services

The Office of International Education and Services (OIES) is the focal point for the development of international education and services. It provides information about study options in other countries and other countries to students interested in international education. The OIES promotes the development of international educational opportunities that are beneficial to students and the university. The OIES also supports international research and collaboration, and provides information about international educational exchange opportunities. The OIES maintains a library of resources and information about international educational opportunities, and provides resources to students interested in international educational exchange. They also encourage the development of educational and cultural activities. The OIES also provides information about foreign universities and organized study abroad programs. The OIES assists students in selecting study abroad programs and in preparing for international study experiences. The OIES provides information about international educational exchange opportunities, and encourages students to participate in international educational exchange programs. The OIES also provides information about foreign universities and organized study abroad programs. The OIES assists students in selecting study abroad programs and in preparing for international study experiences.
Imagining a complete representation of a tiny island of the Hawaiian group. Other natural exhibits include the Bering Sea, Louisiana Swamp, Fall Migration, and Cranes on the South Dakota Prairie. The crane exhibit includes both the sandhill crane and the whooping crane as they appear on the prairie during migration.

The major invertebrate phyla are represented in several exhibits and include such familiar groups as insects and crustaceans, snails and clams, sea stars, and some flatworms. Ethnological exhibits in the museum present artifacts from many parts of the world. Indian and Roman mummies, including beheaded and carved ivory received in the late nineteenth century, are exhibited. The ancestry of humans through 12 million years of time is portrayed in a display featuring replicates of fossil remains from Africa, Asia, and Europe.

Scheduled for completion in early 1985, the museum's new 5,000-square-foot Iowa Hall gallery illustrates the natural heritage of Iowa—its geology, native culture, and ecology—in a series of 60 exhibits linked by theme, and time. Exhibit highlights of Iowa Hall include the Marquette-Julliet diorama, Devonian reef, Mesquakie lodge, and a life-sized reconstruction of an Ice Age man on skis.

Old Capitol

Old Capitol is the official landmark of the University, the Department of the Territory of Iowa from 1842 until 1846 and the capital of the State of Iowa from 1846 until 1857, when the government moved to Des Moines and gave the "old" capitol to the University as its first permanent building. Various University offices and departments have been located in Old Capitol through the years, and it housed the office of the University president continuously from 1850 to 1870, when the president's office was relocated to a building nearby. Most of the rooms were restored to the 1930s, to represent the University years. Old Capitol was reopened in 1976 as a "living museum." Guided tours are conducted daily without charge.

Public Information and University Relations

The Office of Public Information and University Relations is concerned with promoting 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 provide an effective information program through the use of internal and external media. Counsel to the University administration on matters involving public information and University relations; and provides liaison between the central administration and appropriate University, governmental, civic, and other groups.

University public information programs are implemented through the combined efforts of OPI's individual units on campus, including those that specialize in coverage of the performing arts, the health sciences, and whose expertise is in public relations, as well as general news, brochures, and public information. Media units include news, public relations, and photography units. These units supply news, photos, and information through print and electronic media; gather and prepare informative material for special and general interest publications; answer requests for information; and assist writers, photographers, and broadcasters who visit the campus.

OPI publishes the General University Calendar of Events; Campus Correspondent for students' parents; the FYI newspaper for faculty and staff; Programmes forthcoming arts activities; and Speaker for alumni and friends of the University. The department also includes the Office of Stake Relations; serves as the executive office of the Parents Association; operates the University Speakers Bureau; and provides campus tours and other services for University visitors and guests. In addition, OPI has management responsibility for the Kaiser Publications and The University of Iowa Press.

Publications

The Department of Publications provides in-house services to meet printing and publication needs of the University. It provides services to departments and campus organizations planning editing, designing, and printing publications. Copy centers located about the campus provide quick, inexpensive copy service, including for students. The department also operates the Campus Store, which produces and sells manuals, lab notebooks, and other unique instructional materials created by the faculty and not commercially available, and an order fulfillment unit for books and periodicals of the University. The department is responsible for University compliance with the printing regulations of Iowa, including provisions for obtaining competitive bids on printing purchased outside the University.

The University of Iowa Press

The University of Iowa Press was established in 1901 and has published a significant record 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.

Recreational Services

The Division of Recreational Services administers a program of more than 10 intramural sports and recreational activities for all members of the University student, faculty, and staff populations. It offers a wide range of recreational and intercollegiate activities such as sports as basketball, tennis, golf, volleyball, bowling, pool, swimming, hiking, paddleball, racquetball, squash, running, golf, archery, weight training, track, tennis, fencing, and judo. The division is the Earl H. St. Germain Program includes activities as cycling, pallahwa, swimming, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles can be rented, and cross-country skiing equipment is also available for a minimal rental fee.

The University of Iowa Alumni Association

The principal agency through which alumni continue their identification with the University after they leave the campus is the University of Iowa Alumni Association. The association was organized in 1921 to bring alumni together and to strengthen public recognition of the University as an institution vital to the stability of our society. Since its inception, the University of Iowa Alumni Association has expanded in size and scope, and is a member of the University's executive council. The association includes an elected board of directors, and is sponsored by the University.

The University of Iowa Alumni Association is responsible for providing a journal for members of the University community, for alumni of the University, and to implement programs of service to alumni; to strengthen public recognition of the University as an institution vital to the stability of our society and the nation, and, through organized alumni efforts, to serve the University in strengthening its programs in teaching, research, and public service. The Association publishes the Iowa Alumni/ Alumnae magazine for association members.

The University of Iowa Foundation

The University of Iowa Foundation was organized in 1908 to help the University obtain the largest possible educational benefit from private giving. It raises funds for presidentially through three major programs: annual giving, capital campaigns, and planned 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, to hold, administer, manage, use, or dispose of gifts, bequests, and trusts, all for the benefit of The University of Iowa. The foundation is constantly at work to provide more funds for student financial aid, faculty development, research, library acquisitions, and programs and projects throughout the University.

University Personnel Service

The University Personnel Service is responsible for meeting the employment needs of individuals and departments for the entire University complex. The office functions in the areas of recruitment, interviewing, screening, testing, placement, and salary and fringe benefit administration for full-time and part-time, permanent and temporary, nonteaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and faculty and staff benefits programs. It also participates in certain aspects of the academic personnel program, and in payroll record keeping and collecting personnel record data for both faculty and staff employees.
The University's Main Library and its 12 departmental libraries, plus the Law Library, contain approximately 2.3 million volumes. About two-thirds of this collection is in the Main Library.

The Art Library contains approximately 62,000 volumes; Botany-Chemistry, 69,000; Business Administration, 22,000; Engineering, 81,000; Geology, 35,000; Health Sciences, 185,000; Library Science, 11,000; Mathematics, 34,000; Music, 62,000; Physics, 36,000; Psychology, 41,000; and Zoology, 39,000.

The Law Library, which is administered by the College of Law, contains 370,000 volumes.

Special Resources

Main Library facilities include microform reading rooms, listening rooms for collections of recorded drama, poetry, and speeches; seminar and conference rooms; a map center; carrels for graduate students; and individual study rooms for faculty members 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 Lewis Henry Morgan Memorial Collection is particularly rich in deluxe editions, including many superb bindings made especially for Mrs. Morgan.

The French Revolution Collection includes more than 6,000 political pamphlets, chiefly from the years 1788–1795, supplemented by numerous French newspapers and government publications of the time.

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

The "Ding" Darling Collection comprises original of nearly six-thousand cartoons in which, for more than 45 years, Ding recorded and commented on the economic, political, and domestic affairs of the United States. His cartoons are virtually a pictorial history of this country during the first half of the twentieth century. An exhibit of the collection enhances its usefulness for reference and research.

The Bollinger-Lincoln Collection, gathered by Judge James W. Bollinger of Davenport, is one of the best libraries of Lincolns 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. Broadside relating to Iowa and the Civil War period have been added.

The "XI" Collection is a gathering of early, rare, or special works on diverse subjects, including books of the fifteenth and sixteenth centuries, early American, Roxburgh Club Publications, private press books, and selected modern first editions.

The Manuscript Collection includes more than 10,000 individually cataloged sets or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to more than 450 inventoried collections of papers, maps, and correspondence files relating to midwestern economic, political, and agricultural history.

Other special collections include the Harvey Ingram Collection of books about American Indians; the L. C. Leonard Collection of manuscripts and documents dealing with building the Union Pacific Railroad; the Bonanza Collection, which contains several thousand letters and business documents descriptive of the Chautauqua movement; the Audubon Collection of poetry, brochures, manuscripts, and letters relating to the contemporary American artist John James Audubon; the Iowa Authors Collection; the Map Collection, containing more than 190,000 maps and indexed aerial photographs and nearly 3,000 atlas pages, 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 2,500 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 neurosurgeon from Clarinda, Iowa.
College of Liberal Arts

People have many reasons for going to college. Some have specific careers in mind, while others are looking for guidance in seeking careers. Most expect that college will help prepare them for a wide variety of employment; social, and personal developments in their lives.

A liberal arts education is intended to ready students for effective performance in many situations over the course of their lives after graduation. It includes both preparation in specialties and a broad exposure to other areas of learning. Through the wide study of literature and language, mathematics, the physicist, biologist, and social sciences, and the arts, students may gain a general understanding of the many types of situations and people they will meet after leaving college. Although this education often includes sound preparation for specific jobs, it also vanishes career flexibility by giving students broad bases for responding to changing employment opportunities. As a result, the danger that a graduate may become "locked" into a single, unsatisfactory job is reduced.

The kinds of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, demoralization behavior, and the physical and biological world about us. A liberal arts education includes something called a "general education" because students receive one kind of preparation for the opportunities and problems they will encounter throughout their lives. This approach to education assumes that, because we cannot now foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensitivities, and knowledge which will help them generate responses to unexpected events. The College of Liberal Arts attempts to provide this versatility by combining opportunities for major and, where appropriate, minor and general educational requirements.

College Organization

The internal organization of the College of Liberal Arts reflects its multifaceted character. The college is composed of units of various ranks: divisions, schools, departments, programs, and nondpartmental units. There are two divisions in the college. The Division of Fine Arts embraces the School of Art and Art History, the School of Music, and the Department of Communication and Theatre Arts. The Division of Mathematical Sciences includes the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science. Within the college there are seven schools. In addition to the School of Art and Art History and the School of Music, there are schools of Journalism and Mass Communication, Lifetlfe, Library and Information Science, Religion, and Social Work. Over forty formally organized departmental and programs provide instruction in the college arts offer minors or more of one or or more, 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 award minors for work done in Liberal Arts. For example, students admitted to the College of Education or the program of the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for undergraduate 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 in separate entries in the Catalog.

Liberal Arts Advisory Office

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

Every undergraduate student enrolled in the college has an academic advisor to help the student with registration and the progressive development of the educational program that will best prepare the student to pursue his or her life goals. Academic advisers are assigned by the Liberal Arts Advisory Office. Students who have declared majors are assigned advisers from their major departments, students who have not declared majors are assigned advisers from the Undergraduate Academic Advising Center; students in preprofessional programs may be assigned to special advisers from the appropriate professional areas.

Students should go to the Liberal Arts Advisory Office to change academic advisers, to declare or change majors, and to obtain information and advice about graduation requirements, the
Bachelor of General Studies and other degree programs, the College-Level Examination Program (CLEP), Advanced Placement (AP), pass-nondegree, satisfactory-fail, the second-grade-only option, deadlines for various administrative actions (such as dropping courses and canceling registration), probation, dismissal, reinstatement, academic discipline, and any other academic matter.

Degrees Offered and Areas of Concentration

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 confers degrees in the following major fields:

- American Studies—B.A.
- Ancient Civilization—B.A.
- Anthropology—B.A.
- Art—B.A., B.F.A.
- Asian Languages and Literature—B.A.
- Asian Studies—B.A.
- Astronomy—B.A., B.S.
- Biochemistry—B.A., B.S.
- Biology—B.A., B.S.
- Botany—B.A., B.S.
- Chemistry—B.A., B.S.
- Classics—B.A.
- Communication and Theatre Arts—B.A.
- Comparative Literature—B.A.
- Computer Science—B.A., B.S.
- Dance—B.A.
- Dental Hygiene—B.S.
- Early Childhood Education—B.A., B.S.
- Economics—B.A., B.S.
- Elementary Education—B.A., B.S.
- English—B.A.
- French—B.A.
- Geography—B.A., B.S.
- Geology—B.A., B.S.
- German—B.A.
- Greek—B.A.
- Health Occupations Education—B.S.
- History—B.A.
- Home Economics—B.A., B.S.
- Italian—B.A.
- Journalism and Mass Communication—B.A., B.S.
- Latin—B.A.
- Linguistics—B.A.
- Literature, Science, and the Arts—B.A.
- Mathematical Sciences—B.A., B.S.
- Microbiology—B.S.
- Music—B.A., B.M.
- Philosophy—B.A.
- Physical Education—B.A., B.S.
- Physics—B.A., B.S.
- Political Science—B.A., B.S.
- Portuguese—B.A.
- Psychology—B.A., B.S.
- Recreation Education—B.S.
- Religion—B.A.
- Russian—B.A.
- Science Education—B.A., B.S.
- Social Studies—B.A.
- Social Work—B.A.
- Sociology—B.A., B.S.
- Spanish—B.A.
- Special Education—B.A., B.S.
- Speech and Hearing Science—B.A., B.S.
- Statistics and Actuarial Science—B.A., B.S.
- Zoology—B.S.

The B.G.S. and B.L.S. degrees are awarded with no major designations.

Majors in Education and the Teacher Education Programs

Students may indicate a major in one of the fields of education in the time of admission or may change their majors to one of these fields at any time after enrolling, in order to be allowed to enroll in the baccalaureate (major) courses in education. The student must be admitted to the Teacher Education Program (TEP) to be accepted into the TEP, a student must have attained sophomore standing (28 semester hours) and must have earned a total cumulative grade-point average of at least 2.3. Transfer students 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 cumulative grade-point average.

Application forms for admission to the TEP may be obtained in the Liberal Arts Advisory Office. Students admitted will be notified in writing. (For more information, see the College of Education section in the Catalog.)

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. For example, a B.A. in history and English or a B.S. in psychology and sociology. Double majors cannot be earned unless both departments or programs are in the College of Liberal Arts. For further information, see "Areas of Concentration or Major" under Requirements for Graduation.

Honors Interdisciplinary Major

Honors students may pursue an individually planned major in an area of study which draws upon courses from two or more departments, as approved by the honors advisor from the departments concerned and the director of honors. The major must consist of at least 36 semester hours of credit, including six or more semester hours of departmental honors registration, and leads to the degree "with interdepartmental honors." The program of studies must be submitted for approval not later than the junior year.

Minors

Student graduating from the College of Liberal Arts may earn a minor or minors in any eligible-granting department or programs in the College outside of their major department or in another college of the University. The minor may relate directly to the student's interest, in other cases, may allow a student to follow an entirely different and separate interest from the major. Students should seek help from their major advisor in planning minor programs.

Requirements

A minimum of 15 semester hours must be taken in the minor area. At least 12 of the 15 semester hours must be taken in upper-level courses acceptable to the academic unit granting the minor. (Students should check with the minor department to identify acceptable courses.)

No course selected toward the minor may be taken pass-fail.

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

Students must inform the Office of the Registrar of their desire to have a minor listed on their transcript at the time of applying for a degree. The application for degree form reads the signature of the major advisor. Students who have already earned a bachelor's degree from the University of Iowa and 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
The degree-granting programs in early childhood education, elementary education, health occupations education, industrial education, and dental hygiene do not offer minors.

Students in the Bachelor of General Studies program and the Bachelor of Liberal Studies program are not eligible to earn minors, since these are "Programs without majors.

Students who earn bachelor's degrees in interdisciplinary programs—such as ancient civilization, biology, or literature, science, and the arts—may not earn minors in areas falling within the major degree field.

Additional Comments
Some programs in the college that do not offer undergraduate degrees have been permitted by the Educational Policy Committee to offer minors. Information about program approval is available in the academic advising office.

For further information about the minor programs in the College of Liberal Arts, contact the Liberal Arts Advising Office.

Minor in Business Administration
Students in the College of Liberal Arts may seek a minor in business administration. Requirements include pre-business as well as business courses. The courses listed below satisfy all requirements. Interested students should complete the forms for this minor as early as possible in their academic careers. The forms are available in the academic advising office.

Computer programming course 3 s.h.
Course in finance (3 s.h.
 numbered 223 or higher)
Modern business (3 s.h.
 numbered 225 or higher)
611:2 Principles of Economics 3 s.h.
6A1:1 Introduction to Financial Accounting 3 s.h.
6A1:2 Introduction to Managerial Accounting 3 s.h.
6M:101 Introduction to Management 3 s.h.
6M:201 Introductory Management 3 s.h.
6M:100 Administrative Management 3 s.h.
6L:101 Introduction to Law 3 s.h.
*Must be taken junior or senior year.

Students complete the remaining courses for this minor in consultation with the business minor program in the College of Business Administration. Students must meet the general admission requirements of the College of Business Administration (see "Program Requirements for Undergraduate Study" in the College of Business Administration section of the Catalog) to be considered for admission to the business minor program.

Minors in Education
Students in the College of Liberal Arts may earn a minor in education. For detailed requirements, see the College of Education section of the Catalog.

Liberal Arts Minors for Business, Engineering, and Nursing Students

Undergraduate students in the College of Engineering, College of Business Administration, and College of Nursing may earn Liberal Arts minors by satisfying College of Liberal Arts requirements for minors. (For specific requirements see other college sections of the Catalog.)

Interdisciplinary Programs

The following interdisciplinary programs and their requirements are fully described among the academic programs presented later in the Catalog.

Afro-American Studies

The Afro-American Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States of America from the seventeenth century to the present. To provide a comprehensive view of that subject, the program also offers courses examining the African heritage and the present relationships of African Americans to other lands. Because a thorough understanding of Afro-American culture cannot be achieved through a study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both the humanities and social sciences.

The program originated in 1969 in courses intended to foster awareness of the role Afro-Americans have taken in the development of the United States, and to promote understanding of the present conditions and concerns of Black Americans. Since then, these courses have been organized into a curriculum that includes a program leading to an undergraduate minor in Afro-American studies, a Master of Arts degree in Afro-American studies, and concentrations in Afro-American studies in programs leading to a B.A., M.A., or Ph.D in American Studies.

Aging Studies

The Aging Studies Program is a multidisciplinary program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement an undergraduate degree program. It consists of courses in aging studies which have been coordinated and sequenced to provide a planned program of study for students with an interest in aging. This program offers students a unique opportunity for study of aging, and an interdisciplinary approach to the study of aging. Students completing the program lead to an undergraduate minor in Aging Studies.

Global Studies

The Global Studies Program is a cross-disciplinary study of major world problems. The purpose of the program is to give students an opportunity to examine the problems and their interrelationships, and to focus on one set of problems for more detailed analysis. The four problem areas are war, peace, and security; development; environmental concerns and global resources; and cross-cultural understanding. Students completing the requirements of the program are awarded a Certificate of Global Studies at the time they receive their bachelor's degrees. Students holding a global studies certificate may also certify Global Studies as their minor.

Latin American Studies

Students may supplement their undergraduate majors by earning either certification or a minor in the Latin American Studies Program. Students may earn certification from four primary cooperating areas: economics, history, political science, and Spanish and Portuguese, and one or more related disciplines. The program is designed to enhance students' qualifications for a wide range of career opportunities in businesses, government, international agencies, and non-profit organizations. Certification in Latin American studies provides the background for advanced academic study in Latin America.

Literature, Science, and the Arts

The program in Literature, Science, and the Arts (L.S.A.) offers a broad-based, team-taught discussion course on fundamental humanistic topics. Students explore and evaluate important contemporary issues on the basis of their reading in outstanding works. They learn to draw upon books and discussions to develop ideas, and problems and work through them. An L.S.A. major provides a strong background for graduate study in an area of specialization and for medicine, law, business, and other professions.

Women's Studies

The Women's Studies Program is a multidisciplinary program in the liberal arts which is engaged in developing knowledge and understanding about women in the humanities and social sciences and
institutionalizing that knowledge within the university community. The term "women's studies" does not denote segregated education for women but emphasizes teaching and research about women which is of intrinsic interest to all students. This new academic dimension in education forms a cumulative pattern of learning about women and sex. "Women's Studies" supplements neglected areas of study in the existing curriculum, raises proactive intellectual questions, and widens the quest for truth about the human condition. The program offers an undergraduate minor in Women's Studies.

Foreign Studies Certificate

The college's Foreign Studies Certificate program is designed for undergraduate students who seek to broaden their knowledge of societies other than their own. The program is a supplement to and not a substitute for a major. The chairs of the various language departments serve as advisers to students in majoring in the certificate. After selecting an area or country of interest, students wishing to earn the certificate will be guided by the appropriate chair in choosing a group of courses designed to provide a basic understanding of the area or country. Courses may include work in geography, history, anthropology, art, literary or political science, or other fields offering international studies.

Program guidelines for the certificate will include at least 18 semester hours in courses either offered by the department or courses taken at another institution. In addition, students will fulfill the foreign language requirement for the B.A. in a language appropriate to the chosen area or country. A student who successfully completes a Foreign Studies Certificate program designed by the appropriate foreign language department may receive the Foreign Studies Certificate with his or her degree.

Interested students should consult the chair of the appropriate department:

- Asian Languages and Literature (India, China, Japan, Korea)
- Classical (Ancient Greece or Rome)
- French and Italian (France or Italy)
- German (Germany or Austria)
- Russian (Russia or Eastern Europe)
- Spanish and Portuguese (Spain, Portugal, or Latin America)

Specializations within Degree Programs

Almost every degree-granting unit in the college offers internal specializations. Some of these are formal divisions or options within departments. For example, broadcasting is offered in the Department of Communication and Theatre Arts, actuarial science is offered in the Division of Mathematical Sciences, and fashion merchandising and dietetics are offered in the Department of Home Economics. The School of Art and Art History and the School of Music have many different tracks leading to baccalaureate degrees. Studio emphasis, art history emphasis, and general education courses are offered, with specialization in music education, music therapy, composition/theory major, and applied music.

Other specializations can be developed with consultations of courses taken from several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication and Theatre Arts, the Program in Communication Studies, and the School of Journalism and Mass Communication; photography and graphic design specialization in courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in the various business and social sciences departments.

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

Preprofessional (Joint) Programs

Joint programs leading toward graduation from the College of Liberal Arts may be used by students to own degree from the University of Iowa, Iowa, and any accredited medical or dental college in the United States that offers advanced degrees.

To be eligible to use a joint program with the above colleges toward a baccalaureate degree from The University of Iowa, students must meet certain requirements. Prior to attending the pre-collegiate level of a four-year college, a student must have earned at least 94 semester hours; fulfilled all general education requirements; met the requirements for the major; and satisfied the residence requirement of the college.

After the student successfully completes the first year of medical or dental school, the College of Liberal Arts will, upon presentation of a transcript, award a student 30 semester hours of ungraded elective credit that may be applied toward a 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 electives towards a degree in the College of Liberal Arts.

To use a joint program with an accredited U.S. medical or dental college other than the University of Iowa, a student, during his or her last semester in residence at the University, should apply to the school of Medicine or Dentistry in the College of Liberal Arts for permission to use this joint degree program. If the student meets the requirements listed above and will be attending an accredited medical or dental school, the registrar will instruct the student how to proceed toward applying for a bachelor's degree from The University of Iowa.

Combined Degree Program Between The College of Liberal Arts and The College of Engineering

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the Colleges of Engineering and Liberal Arts. To enroll in the 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 Dean in either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisers from both colleges. It is critical to enroll in the proper mathematics and engineering courses. Therefore, the University of Iowa College of Liberal Arts will no later than the beginning of the fall semester each year notify the student when to begin the combined degree program. The student in the combined program can normally meet the baccalaureate degree requirements of both colleges in about the academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in Liberal Arts and Engineering.

Students selecting this program will be required to complete the general education requirements, the requirements for the major, and the residence requirement for the College of Liberal Arts. The specific engineering courses taken must be approved by the dean of the College of Liberal Arts, according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities are regularly accepted for credit by both colleges, the student does not have to complete any courses satisfying the requirements for two colleges in the taking of a particular course.

Two or More Bachelor's Degrees

Students seeking an additional different bachelor's degree must complete at least 30 additional consecutive hours of study in residence in the college beyond the first degree. However, the B.A. and B.S. degrees will be considered to have satisfied all program requirements for graduation except the foreign language.
requirement. Holders of other degrees must meet college course requirements. Students with B.A. or B.B. degrees from other colleges must also satisfy the residence requirement for a bachelor's degree at Iowa.


Total Earned Hours

Students who enter as beginning freshmen must earn a total of 124 semester hours. The number required of a transfer student is indicated on the student's admission statement.

Residence

Students must meet a minimum residence requirement. This may be met by:

- The last 30 consecutive semester hours in residence, or
- 45 of the last 60 semester hours in residence, or
- An overall total of 90 semester hours in residence.

Nonresident instruction includes course work at other colleges and universities, correspondence courses at The University of Iowa, and all work by correspondence, including University of Iowa correspondence courses.

Scholarship

The general requirements for graduation include the element of quality as well as quantity of work completed.

1. A student satisfies the college qualitative requirements for graduation by earning a minimum grade-point average of 2.0 in (a) all college work attempted, (b) all work undertaken at The University of Iowa, and (c) all work attempted in the major field (including 2.0 in all University of Iowa major work).

2. A student who does not meet the requirements above but who does have (a) a cumulative grade-point average of at least 1.90 in all college work attempted and in all work undertaken at The University of Iowa, and (b) a 2.0 in the major may satisfy the requirement by earning sufficient grade-point to equal or exceed a figure obtained by multiplying by two the number of semester hours required for graduation at the time of entrance. This rule (the 1.90 rule for graduation) does not apply to students who enroll at Iowa for the first time after May 1982 or who have not graduated by May 1988. Those students must have a 2.0 grade-point average—see (1) above—in order to graduate and be in good standing as a senior.

General Education Requirements

All students who registered for the first time at Iowa for any session after May 1982 must complete the following general education requirements for the degrees of B.A., B.S., B.F.A., and B.M. as described below:

- Rhetoric
- Mathematics
- Quantitative or formal reasoning
- Foreign language
- Physical education
- Natural sciences
- Social sciences
- Humanities
- Historical perspectives
- Foreign civilization and culture

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 eight semester hours of credit earned in rhetoric courses may be counted towards a bachelor's degree.

All transfer students regardless of the number of hours brought in must satisfy the rhetoric requirement.

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

- By passing 10:1 and 10:2 Rhetoric for eight semester hours.
- By passing 10:3 Rhetoric for four semester hours.
- By passing the speech test and 10:4 Rhetoric for two semester hours.
- By passing the writing test and 36F:25 Principles of Speech Communication for two semester hours.
- By passing both the speech and writing tests.

Proficiency tests in writing and speaking are given during the first week of classes for students who register for 10:3 Rhetoric. Exemption from part or all of the requirement may be awarded upon the basis of these tests. (Academic credit will not be given.)

Mathematics

The college requirement in mathematics may be met in any of the following ways:

1. By scoring 26 or above on the mathematics subscore of the ACT general test battery.
2. By completing two years of high school algebra and one year of high school geometry or their equivalent.
3. By successfully passing the Mathematics Proficiency Test. (The passing score will be equivalent to a score of 26 or above on the mathematics subscore of the ACT general test battery or the mathematical proficiency expected of those who have two years of high school algebra and one year of high school geometry. Scores from this test may also be used to recommend placement of students in elementary college mathematics courses. (Academic credit will not be given for passing the proficiency test.)
4. By passing 22M:1 Basic Mathematical Techniques, a three-semester hour course.
5. By competing any college-level mathematics course comparable to or more advanced than 22M:1 in the Division of Mathematical Sciences; or
6. Transfer students will be considered as having met the requirement if they have passed any college-level course in mathematical sciences at another school which is comparable to the courses used for this purpose at Iowa. (Acceptance of the course will be based on an evaluation of its content and level of difficulty.)

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.

Quantitative or Formal Reasoning

The requirement may be satisfied:

By completing any one of the courses listed below,

- By passing a more advanced course which has one of the listed courses as a prerequisite.
- 7P:25 Elementary Statistics and Inference
- 22M:1 Quantitative Methods I
- 22M:10 Fundamentals of College Mathematics I
- 22M:11 Fundamentals of College Mathematics II
- 22M:15 Mathematics for the Biological Sciences
- 22M:15 Mathematics for the Biological Sciences
- 22M:20 Elementary Functions
- 22M:25 Calculus I
- 22M:30 Calculus II
- 22S:2 Statistics and Society
- 22S:3 Quantitative Methods I
- 22S:35 Elementary Statistics and Inference
- 26:30 Principles of Reasoning
- 36C:40 The Art and Practice of Argument
- 112:12 Language and Formal Reasoning

This requirement should be met by the end of the student's second year in
Students may receive credit for college courses that duplicate high school work in a foreign language.

If a student selects French, the foreign language requirement for the B.A. degree may be fulfilled by taking a sequence of courses culminating in 11-12 Intermediate French, or 9-26 Second-Year Composition and Conversation, or a combination of 9-27 First-Year Composition and Conversation and 9-35 French Conversation First Level. If the second-year requirement is fulfilled in French, it is possible to substitute the French requirement with the German requirement by taking Advanced German Composition and Conversation. French Composition and Conversation and the World Languages portion of the German requirement will satisfy the requirement if the student is required to take a second-year requirement in French.

A two-semester sequence of either elementary Chinese or elementary Japanese (a total of 12 semester hours) will meet the foreign language requirement for the B.A. degree. One semester of either of these languages (six semester hours) will meet the foreign language requirement for the B.B., B.F.A., and B.M. degrees. There is no foreign language requirement for the Bachelor of General Studies or the Bachelor of Liberal Studies degrees. Students who are proficient in a foreign language not usually taught at The University of Iowa may validate their proficiency. (Academic credit will not be given.)

In some cases, foreign students may use English to satisfy the foreign language requirement.

Physical Education
All students must complete four one-semester hours in physical education skills under the satisfactory-fail grading procedure. Guiding this requirement is the belief that adequate physical fitness can be maintained by: a regularly scheduled program of physical activity, and a well-rounded program of healthful habits. Therefore, in order to fulfill this requirement, students must complete a minimum of two semester hours in the fall or spring semester. Physical Education courses are available in either two- or four-credit-hour courses, but a minimum of four credits must be completed.

Procedural Examinations
Satisfactory performance on an achievement examination meeting proficiency equivalent to that usually attained after four semesters of college study meets the B.A. degree requirement. Proficiency equivalent to that usually obtained after two semesters of college study meets the B.B., B.F.A., and B.M. degree requirement. (Academic credit will not be given.)

Additional Comments
A course in a foreign language may not be taken pass-nonpass if it is part of a sequence of courses used to satisfy the foreign language requirement.
Foreign Civilization and Culture
Students must complete one three- or four-quarter-hour course from the list below. Courses used to satisfy this requirement may also be approved to satisfy, in part, the social sciences, historical perspectives, or humanities requirement.

15:4 Western Art and Culture Before 1400  3 s.h.
15:6 Western Art and Culture After 1400  3 s.h.
15:11 Islamic Art and Civilization  3 s.h.
16:19 Introduction to Asian Art  3 s.h.
17:101 Education, Politics, and Culture of Mainland Southeast Asia  3 s.h.
80:14 Literature of the Ancient Peoples  3 s.h.
13:17 German Heroic and Erotic Literature of the Middle Ages  3 s.h.
15:101 Introduction to Modern German Literature I  3 s.h.
15:102 Introduction to Modern German Literature II  3 s.h.
15:105 German Cultural History  3 s.h.
13:115 Contemporary German Civilization  3 s.h.
13:118 The Third Reich and Literature  3 s.h.
14:13 The Classical Views  3 s.h.
16:1 Western Civilization to 1792  3 s.h.
16:2 Western Civilization since 1792  3 s.h.
16:5 Civilizations of Asia  3 s.h.
16:6 Civilizations of Latin America  3 s.h.
16:66 Introduction to Colonial Latin America  3 s.h.
16:76 Early to Modern Latin America  3 s.h.
16:85 Survey of Ancient Near East and Greece  3 s.h.
16:107 The Hellenistic World and Rome  3 s.h.
16:110 Medieval Civilization  3 s.h.
16:114 History of the Medieval Church  3 s.h.
16:118 Early France and the Age of Chivalry  3 s.h.
16:121 Society and Culture in Europe 1500-1648  3 s.h.
16:123 Age of the Renaissance  3 s.h.
16:128 France from Revolution to Restoration  3 s.h.
16:136 United States Revolution and Napoleon  3 s.h.
16:137 Eighteenth-Century Europe: The Imperial Era  3 s.h.
16:138 France from 1815 to the Present  3 s.h.
16:141 Germany 1789-1914: Consumption of Power  3 s.h.
16:142 Germany since 1914: Society and Revolution  3 s.h.
16:151 History of East Central Europe 1385-1795  3 s.h.
16:152 East Central Europe: 1815-1918  3 s.h.
16:154 Klevan Rus’ and Eastern Poland from 1662 to 1692  3 s.h.
16:155 Imperial Russia 1662-1917  3 s.h.
16:156 Soviet Union 1917-1953  3 s.h.
16:158 Society and Gender in Europe 1450-1750  3 s.h.
16:159 Society and Gender in Europe 1750-1860  3 s.h.
16:192 The Mexican Revolution  3 s.h.
16:193 History of Ancient and Traditional India  3 s.h.
16:194 Imperialism and Modern India  3 s.h.
16:195 Traditional China  3 s.h.
16:196 China: Coolie War to Mao  3 s.h.
16:197 Premodern Japan  3 s.h.
16:198 Modern Japan  3 s.h.
16:199 First World War  3 s.h.
25:103 World Music I  3 s.h.
30:141 Introduction to Soviet Government and Politics  3 s.h.
30:143 Government and Politics of the Far East  3 s.h.
30:144 Latin American Government  3 s.h.
30:145 Major States of Latin America  3 s.h.
30:146 African Development  3 s.h.
30:148 The Politics of Southern Africa  3 s.h.
30:15 Latin American Narrative  3 s.h.
30:167 French Cinema and Culture  3 s.h.
30:168 Latin American Cinema  3 s.h.
39:16 Introduction to Asian Art  3 s.h.
39:19 Asian Humanities  3 s.h.
39:20 Asian Humanities  3 s.h.
39:55 Civilization of Asia  3 s.h.
39:56 Civilization of Asia  3 s.h.
39:94 Living Religion of the East  3 s.h.
39:107 Ethnology of Southeast Asia  3 s.h.
39:113 History of Ancient and Traditional India  3 s.h.
39:114 Imperialism and Modern India  3 s.h.
39:115 Imperialism and Modern India  3 s.h.
39:116 Traditional China  3 s.h.
39:154 China: Opium War to Mao  3 s.h.
39:178 Government and Politics of the Far East  3 s.h.
39:182 Japanese Society  3 s.h.
39:193 Japanese Society  3 s.h.
44:17 World Civilization  3 s.h.
44:161 African Development  3 s.h.
45:8 Literatures of the African Peoples  3 s.h.
113:105 Ethnology of Melanesia  3 s.h.
113:116 Social Anthropology of the Carolinian Islands  3 s.h.
113:125 Japanese Society  3 s.h.
113:127 Ethnology of Oceania  3 s.h.
113:129 Ethnology of Southeast Asia  3 s.h.
113:131 Latin American Economy and Society  3 s.h.

Pass-Nonsense
No course used to satisfy any of the general education requirements may be taken pass-nonsense. Physical Education skills courses will be graded on a satisfactory-fail basis.

Course Limits and Waivers
No course from a student's major department may be applied to satisfy general education requirements, except (a) BI 2241, "Basic Method and Techniques", or those courses used to satisfy the foreign language requirement, (b) the physical education requirement, or (c) the foreign civilization and culture requirement. Each department, however, may waive four semester hours of general education requirements for its B.A. students and 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. Each department will be asked to submit a statement to the dean of the college designating the area in which it requests to waive these hours. Statements must receive the approval of the dean and the Educational Policy Committee.

Three Or More Courses From One Department
A student may use no more than three courses offered by any one department to satisfy the historical perspectives and the humanities requirements together.

General Education Requirements and Transfer Students

Transfer Students Without Degrees
Transfer students who have had courses elsewhere that are similar to those approved to satisfy general education of Iowa may count these courses toward the general education requirements (acceptance is dependent upon the student's admission statement). If a transfer student brings to Iowa fewer than enough hours to meet a general education requirement, he or she may use only approved courses to complete the remainder of the requirement.

Transfer Students with A.A. Degrees
Students who have earned A.A. degrees from Iowa community colleges with which the University has a special agreement will be considered to have met all the college general education requirements except the foreign language requirement. The student's program of study for which the A.A. degree was awarded must include the following: a minimum of 50 semester hours of credit acceptable for transfer, the completion of an agreed- upon group of courses at the community college, and at least a 2.0 grade-point average. A yearly review is conducted to assess whether students are meeting the stipulations of this agreement.

The Unified Program
The Unified Program (UP) is a four- semester series of integrated general education courses for a small group of students who choose the program when they are freshmen. UP satisfies all of the
Electives
The 124 semester hours required for graduation include hours for general education courses, hours for courses in the major/minor, and hours for courses taken as electives. Electives are the non-required courses that students choose or elect to take and may be taken at any level.

Elective Credit from Other Colleges
The College of Liberal Arts will accept toward the bachelor’s degree up to a maximum of 30 semester hours of credit that the student earns from courses taken in all other colleges of the University while enrolled in the College of Liberal Arts.

Ungraded Elective Credit in Preprofessional (Joint) Programs
This provision makes it possible for the student who enters a medical or dental college to obtain a bachelor's degree from the College of Liberal Arts upon the successful completion of one academic year of professional college work. For further information, see the section on Preprofessional (Joint) Programs.

Other Requirements for Graduation
A maximum of 16 semester hours of credit with a grade of P (pass) and 16 with a grade of S (satisfactory) may be permitted in addition to credit earned by examination.

Semester hours for courses completed with a grade of N (nonpass) do not count toward the total number required for graduation, nor do they count in the computation of the grade-point average. Maximum credit that may be earned through correspondence is 30 semester hours. Correspondence courses do not earn resident credit.

After a student has earned 62 semester hours of college credit from all sources, no more credit may be accepted by transfer from a two-year college toward meeting the 124 semester hours needed for graduation from the College of Liberal Arts. If a student has more than 62 semester hours of credit from a two-year college, that credit and grade will be used in computing the grade-point average and may be used to fulfill course requirements, but the credit will not count toward the total hours needed for graduation.

Application for Degree
Each student who wishes to be considered for graduation must file an application for a degree with the Office of the Registrar not later than the deadline date during the session in which the degree is to be conferred.

If a student does not graduate on the date indicated in the application, he or she must file another application for a degree for the next applicable session. Students who are not registered are to be registered to apply for a degree.

Graduation Analysis
Students may obtain a written graduation analysis upon presentation at the Office of the Registrar. The analysis may be requested at any time after the completion of the sophomore year. Each student is limited to only one analysis.

Bachelor of General Studies
The Bachelor of General Studies degree is designed to provide students with maximum flexibility in planning their educational programs. Candidates for this degree should have clear educational goals with specific courses and areas of study already in mind. To earn this degree, a student does not have to satisfy the general education requirements of the college, but must complete the minimum requirement for the B.G.S.

No major or concentration is specified with this degree, and B.G.S. students are not eligible to earn minors.

Within the freedom of the B.G.S. degree, students may elect to focus on courses related to a single topic or they may choose a diverse variety of courses. Individuals may put together one or more groups of courses to provide just the background they desire. All B.G.S. students should follow the requirements for the B.A. or B.S. degree in planning their programs, and should determine their interests only when it seems their best interests to do so. Students not interested in an individualized “area of concentration,” the student should examine the requirements in the major most closely related to his or her field of interest.

If a student who has been pursuing a B.G.S. degree decide to earn a B.A., B.S., B.F.A., or B.M. degree instead, he or she must first complete the general education requirements for that degree.

Requirements
Specific requirements for the B.G.S. degree are as follows:

Completion at The University of Iowa of at least 45 semester hours of courses numbered 100 and above, including no more than 20 semester hours in one department.

Completion of at least 124 semester hours of college-level course work, including no more than 40 semester hours in any one department and no more than 30 semester hours in any of the other colleges of the University.
while the student is enrolled in the College of Liberal Arts.

Completion of an appropriate metric course, unless the student is exempt.

Achievement of at least a 2.0 grade-point average both overall and in the 45 semester hours of upper-level work.

For purposes of the above requirements, all College of Education courses (prefix 77) are considered to be in one department; all College of Business Administration courses (prefix 6) are considered to be in one department except those in economics (prefix 66) and all Division of Mathematical Sciences courses (prefix 22) are considered to be in one department. Undergraduate courses offered by the College of Education are considered to be in the College of Liberal Arts.

All rules and regulations of the College of Liberal Arts apply to the B.G.S. degree (total hours, residence, academic standards, deadlines, pass-fail, credit by examination, correspondence study, etc.) except as specified otherwise.

Teaching Certification with the B.G.S. Degree

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

By meeting at B.G.S. upper-level course requirements and distribution requirements.

By meeting the requirements of the major department (this usually involves meeting major requirements in some field, such as elementary education, English, social studies education, etc.) and

By meeting certification requirements in the selected certification program (this involves methods courses and practices teaching).

A B.G.S. student seeking certification to teach at the junior college level in education and psychology courses to avoid exceeding the B.G.S. maximum allowance of 45 semester hours in one department.

Additional Comments

Since many 100-level courses have prerequisites, B.G.S. students should plan ahead to complete during the freshman and sophomore years the prerequisites they will need for the upper-level courses they wish to take.

B.G.S. students who intend to apply for admission to a particular graduate or professional school should find out what courses they will need to complete to meet admission requirements.

Bachelor of Liberal Studies

Offered by each of the three Iowa Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa), the B.L.S. program is designed to serve adults who cannot attend college full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and 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 new-media courses; Saturday and evening classes; extension courses; enrollments those with new distance-learning formats; and regular on-campus courses. Students may also take proficiency examinations.

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

Admission Requirements

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 60 semester hours of college work acceptable for credit toward graduation, with a 2.0 grade-point average.

Graduation Requirements

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

The B.L.S. candidate must meet the general education requirements of the Regents university from which the candidate expects to receive the degree. Students who have a valid A.A. degree from an accredited two-year college in Iowa may already have met these requirements.

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours (or 18 quarter hours) of credit in each of three of these 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, with at least six semester hours of upper-level credit in each of the three areas chosen. Credits applied to the general education requirements must not be used to meet the distribution area requirements.

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

Registration Procedures

Adding and Dropping of Courses

Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with the approval of the advisor and instructor. Courses may be dropped at any time during the first two weeks of the semester or first five weeks of the summer session with the approval of the advisor 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 listed in the Schedule of Courses, may be added with the necessary signatures at any time during the first one-fifth of the duration of the course and dropped at any time during the first one-fifth 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 Liberal Arts Advisory Officer will be needed for all adds after the third week of the semester (first one and one-half weeks of the summer session and for all drops that occur after the tenth week of their week of the summer session).

Undergraduate students in the College of Liberal Arts will be assigned a mark of W (Withdrawal) for any course in which they have dropped the third week. Undergraduate students in the College of Education will be assigned a mark of W (Withdrawal) for any course in which they have dropped the third week. Undergraduate students in the College of Education will be assigned a mark of W (Withdrawal) for any course in which they have dropped the third week. Undergraduate students in the College of Education will be assigned a mark of W (Withdrawal) for any course in which they have dropped the third week.
For courses that begin or end at times other than the beginning and end of the semester, students may drop these courses any time within the first one-fifth of the duration of the course without being assigned a mark of W. Students may not drop the same course during the same summer session. Special courses which may be repeated are exempt from this rule.

Dropping for Nonattendance
In order to provide vacancies in crowded classes, instructors are permitted to drop any student from their classes 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. These drop actions will be made without the assignment of a mark of W.

Other Changes in Original Registration
Changes involving pass-no pass registration or registration for zero credit (audit) may be made only during the first three weeks of the semester (or 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 registrar 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.

Late Registration
Students will not be permitted to register after the third week of classes during regular semesters and after the first one and one-half weeks of the summer session.

Cancellation of Registration
Students may cancel their registrations at any time prior to the end of the twelfth week of the semester or sixth week of the summer session. Cancellation after the above deadline will result in the automatic assignment of a mark of F in each course.

Students who self-cancel may not be readmitted to the course for cancellation in the session in which they canceled.

Students whose registrations have been canceled by the registrar for nonpayment of accounts may not register again without paying their debts in full and being reinstated for all classes.

Courses Listed in More Than One Department
For identical courses listed in more than one department the student may register under whichever course number he or she prefers.

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

Maximum Schedule
The normal or typical schedule is 15-16 semester hours in a regular semester, 8-9 semester hours in a summer session. The maximum permitted registration is 23 semester hours in a regular semester, 10 semester hours in a summer session. Students may obtain permission in the Liberal Arts Advisory Office to register for more hours than the maximum allowed.

Grading Procedures
The following grading system is used in the college:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade point for each s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>B+</td>
<td>Above Average</td>
</tr>
<tr>
<td>B</td>
<td>Average</td>
</tr>
<tr>
<td>B-</td>
<td>Below Average</td>
</tr>
<tr>
<td>F</td>
<td>Failing</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>P</td>
<td>Pass</td>
</tr>
<tr>
<td>N</td>
<td>Nonpass</td>
</tr>
<tr>
<td>R</td>
<td>Registered (audit)</td>
</tr>
</tbody>
</table>

Incompletes (I)
A grade of I may be reported only if (a) the unfinished part of the work is sufficiently advanced (other than in research, thesis, or independent study) is small; (b) the work is unfinished for reasons acceptable to the instructor; and (c) the student's standing in the course is satisfactory. Courses may not be repeated to remove incompletes. Incomplete grades must be removed by completing the unfinished part of the work. Failure to remove the incomplete during the next session for which the student is registered (except that students with Incompletes from spring semester are exempt from the need to complete the work during the succeeding summer session) will result in an F being assigned to replace the I. All special reports to the Registrar will be made prior to the registrar or on before the clearing the faculty of the student in the or for the next session in which the student is registered. No extensions to prevent the grading of an F will be made. Instructors, if they desire, may allow students to make up incompletes at any time subsequent to the deadline, even if the incomplete has been changed to an F. In such cases, special report to the registrar must be sent for approval to the dean of the college since the instructor's name is changing a grade.

Withdrawn (W)
Undergraduates will receive the mark of W for any course in the college dropped after the third week of the semester or first one and one-half weeks of the summer session. For further information, see "Adding and Dropping of Courses."

Pass-No pass (P-N)
The mark of P may be used in lieu of grades of A, B, D, and F for authorized courses in the College of Liberal Arts. Students registered on a P-N basis who receive grades of D or F will have F entered on their record. The grades of P and N will not be used in computing grade-point averages nor will the grade of N count as earned hours for graduation. Arts students taking courses in other colleges of the University will be informed of the grading policies of those colleges. Students from outside the University wishing to take a course in the College of Liberal Arts will be subject to Liberal Arts grading policies.

P-N grading may be used in the following courses during the summer session: (a) summer 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 on or any times other than the beginning and end of the session, students may register for P-N at any time during the first six weeks 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 Registrar Center before the deadline.

A student must be in good academic standing to be eligible for the P-N option. The academic adviser shall not sign P-N forms unless the student is in good standing.

P-N grading may be used in elective courses only. Courses used to satisfy general education requirements or requirements in the major or minor may not be dropped on the P-N basis.

A maximum of two P-N courses may be taken in any session.

Not more than 16 semester hours of grades of P from all colleges will be accepted toward the bachelor's degree. Transfer students admitted to the University with
lower than 58 semester hours of credit may earn the maximum of 16 semester hours of grades. Grades with more than 55 semester hours are limited to eight semester hours.

Satisfactory-Fail (S-F)
The option of taking courses on a satisfactory-fail basis is available to all students in the College of Liberal Arts under the following conditions:
When approved by the department and the dean of the college, the grade of S may be used in courses in which, in the judgment of the department, the instructional purposes of the course will be better served by the S-F basis.
Not more than 16 semester hours of S grades will be accepted toward the bachelor's degree of any student.
Special forms are not necessary to register for S-F courses. All students in such courses will receive either an S or F.

The grade of F earned in courses taken S-F will not be used in computing the grade-point average.

No Grade Reported (0)
The O (zero) designation appearing on a student's permanent record must be changed to a valid grade according to the same rules that apply to incompletes. Failure to remove the 0 in the specified date will result in the student being assigned a grade of F for being assigned for each such record.

Registered (Audit)
Students in the College of Liberal Arts may register as auditors if approval is granted by the advisor and the instructor of the course. In addition to obtaining the signatures of the advisor and instructor, a student must register for zero credit in the course to be audited. To add a course for audit after the opening of the semester, a student must register for zero credit in a change of registration form. Any change from credit to audit or from audit to credit must be made within the first three weeks of the semester (first one and one-half weeks of the summer session), using a change-of-registration form to obtain the necessary signatures.
The mark of R will be assigned if the student's attendance and performance are satisfactory, if unsatisfactory, the mark of W will be assigned. Courses so graded will not be applied toward graduation. A student who is auditing a course may receive credit toward graduation. Auditing may not be used as a second-grade-only option.

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) dividing the grade points earned by grade by the number of hours undertaken, excluding courses in which grades of R, P, or PR have been given. Grades of F are included in hours attempted and used in computing the grade-point average.

Official Transcripts
Official transcripts of a student's record may be obtained in the Office of the Registrar.

Midsemester Reports
At midsemester instructors report grades for all students whose work is below C. These reports are distributed to advisors and to individual students. Delinquent grades are not reported on an student's permanent record.

Classification of Students
Class
- Freshman: Less than 29
- Sophomore: 29-55
- Junior: 56-89
- Senior: 90 or more

Duplication
Duplication occurs when a student takes the same course more than once. Whether duplication has occurred is determined by the registrar at the time of graduation, and, if it has occurred, the student must earn extra hours to replace those earned by duplication. Grades for both courses will be kept on file showing the student's grade-point average.

Regression
Regression occurs if a student takes a lower-level course (which is a prerequisite) after having satisfactorily completed a more advanced course in the same subject. Whether regression has occurred is determined by the registrar at the time of graduation, and, if it has occurred, the student must earn extra hours to replace those earned by regression.

Second-Grade-Only Option
A student may repeat a course taken at The University of Iowa, unless obvious regression is involved, and have only the grade and credit of the second registration used in calculating total hours earned and the University of Iowa cumulative and total cumulative grade-point averages. This provision may be applied to a maximum of 16 semester hours of work and may be used only once per course.

Second-Grade-Only Option
A student who wishes to utilize the provisions of this rule should register in the usual manner for the course or courses he or she desires to repeat or add and 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).

Apply to the Liberal Arts Advisory Office to check he or her eligibility and complete the proper form. Current procedures of counting both grades in inservice supervisors and the student's permanent record will be carried out unless the student completes the form. 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 in calculating the grade-point average and hours earned. The use of the second-grade-only option does not guarantee the opportunity to repeat a specific course. For example, the course may not be offered within the period of time the student has available, or the course may no longer be offered. The second-grade-only option may not be used if the first grade was assigned as a result of disiplinary action.

If the student takes the course for a grade the first time, he or she must take the course for a grade the second time. If the student took the course pass-fail the first time, he or she will take the course for a grade or for credit the second time.

Deficiency in English
Any instructor who finds the written work of a student seriously defective in the use of English is expected to report the case, together with specimen papers, to the writing supervisor and the student's advisor. A student who shall have the authority to require additional work in composition without credit. Instructors are authorized to require students to take the minimum reduced grade to written work that does not demonstrate an accurate, effective use of the English language.

Scholastic Probation and Dismissal
Students who fail to attain the following minimum cumulative grade-point averages (0.0 and overall) for their class and/or (continued) on scholastic probation:

- Freshmen: 1.80
- Sophomores: 1.75
- Juniors: 1.90
- Seniors: 2.0

Students who enrolled at low grades for the first time prior to May 1982 and who will graduate prior to May 1986 must meet the following minimum grade-point averages in order to be in good academic standing.
Recognition for Academic Achievement

Dean's List

Liberal arts students who achieve grade-point averages of 3.5 or above during a given semester or 2 or more semester hours of graded work and who have no hour of I or O are recognized by inclusion on the Dean's List for that semester.

Honors Program

The Honors Program offers special curricular and extracurricular opportunities to outstanding students. Freshmen may take specially designed courses taught by faculty, and many general education courses include honors discussion sections. Most departments offer honors seminars, independent research, and the opportunity to write a senior thesis under a faculty mentor's guidance. Successful completion of such work may lead to a baccalaureate degree with honors in the major (see below). The Shambaugh House Honors Center is a place where honors students socialize and study. The Association of Iowa Honors Students plans a variety of social, cultural, and career or postgraduate advising activities each year. Entering students with strong academic records are invited to join the Honors Program, but any student whose grade-point average meets the required minimum may join at any time. For information contact the Honors Program, Shambaugh House Center.

Graduation Honors

High scholastic achievement is recognized upon graduation in two ways: (a) graduation with distinction based upon grades only, and (b) graduation with honors in a particular field. Based upon both grades and the completion of special work as outlined by the college and the major department. To be eligible for either form of recognition, the student must complete the final 60 semester hours in residence 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 for graduation 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 begun prior to their final registration.

Graduation with Honors

The director of Honors certifies to the dean of the college the names of graduating students eligible to graduate "with honors." To be eligible, the student must be recommended by his or her major department and be approved by the Honors Council and the dean of the college.

Placement and Exemption Examinations

Rhetoric

Proficiency tests in writing and speaking are given during the first week of classes for students who register for 10:3 Rhetoric. Exemption from part or all of the requirement may be awarded on the basis of these tests. Academic credit will not be given.

Mathematics

Students may meet the mathematics requirement by passing the Mathematics Proficiency Test. The passing score is equivalent to a score of 25 or above on the mathematics subscore of the ACT general test battery or the mathematical proficiency expected of those who have taken two years of high school algebra and one year of high school geometry. Academic credit will not be given.

Physical Education

This requirement may be satisfied in whole or in part by passing comprehensive tests in specific physical education activities or sports. Up to four semester hours of ungraded credit or exemption may be awarded for successful completion of these tests. Credit from these tests may not be used as elective credit towards a degree. A maximum of four semester hours of credit by examination in physical education units will be counted towards a bachelor's degree.

Foreign Languages

Students who believe that they have had the equivalent of the college's graduation requirement in any foreign language taught at the University may take a proficiency examination in that language. Students who pass this proficiency examination may be excused in whole or in part from taking a foreign language in the college. Academic credit will not be given.
Other General Education Courses

A college-approved program of examinations used by the College-Level Examination Program (CLEP) is administered by the Liberal Arts Advisory Office. Eligible students may earn credit toward meeting the general education requirements.

Advanced Placement and Credit in Nonmajor Areas

Students who have pursued college-level courses in high school or otherwise attained equivalent competence may be awarded advanced placement and credit on the basis of their performance in appropriate examinations. The examinations that be those prepared by the Advanced Placement Program (AP) of the College Entrance Examination Board or by a recognized test construction agency or group as approved by the Educational Policy Committee. In addition to AP, these include the College-Level Examination Program (CLEP).

Information about the CLEP tests may be obtained in the Liberal Arts Advisory Office. For information about the AP tests write to the College Entrance Examination Board, 475 Riverside Drive, New York, N.Y. 10027.

Examination Credit in the Major

Departments may administer examinations covering required courses or areas of instruction in the major field and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 15 semester hours. In the case of foreign languages, credit toward graduation may be awarded only for passing in the third and fourth semester-level (or above) course work.

Validation of Credit

Students with educational experience obtained at a nonaccredited institution or in a formal training program in which there is no standardized procedure for evaluation of credit may request validation of the credit. The Liberal Arts Advisory Office and the department concerned should be consulted for approval to take the appropriate examinations.

Regulations Governing Attendance, Final Examinations, and Student Conduct

Class Attendance

The individual faculty member or course supervisor determines the policy regarding class attendance in his or her own course, except that students are to be permitted to "make up" examinations or other required work missed due to illness or participation in University-sponsored absences from class. Students are required to observe the regulations as announced for the course. The individual instructor may assign extra work, lower grades, or recommend to the dean that the student's registration for the course be dropped if absences are excessive. Students are expected to attend classes regularly; it is suggested that instructors keep reasonably adequate attendance records, especially in courses in which full-term enrollments are seen. When an instructor considers that a student has been excessively absent, shall it, when such absence endangers satisfactory academic progress, the instructor may call on or write a written request to the Liberal Arts Advisory Office for an investigation and action.

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

Students who have been absent because of illness are expected to present evidence that they were unable to complete the work. Regular excuse forms for this purpose are available in each department office and the Liberal Arts Advisory Office. Students should not be asked to obtain excuses from the Student Health Service.

Commencement Attendance

Attendance at University commencement exercises is optional. Candidates for degrees should inform the Office of the Registrar whether or not they intend 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 dean, all final examinations must be given according to the schedule as announced in the schedule of courses. During the summer session there is no designated final examination period and final examinations are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

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

Student Conduct

Any offense against good order committed by a student in a classroom or a laboratory may be dealt with summarily by the instructor or referred to the Office of the Dean. The instructor should report in writing any disciplinary action undertaken against a student to the Office of the Dean. If the student is enrolled in another college, the report should be made to the dean of the college.

Student Dishonesty

Reporting of Plagiarism and Cheating

All cases of plagiarism and cheating in the College of Liberal Arts should be reported for action to the Office of the Dean through the departmental channels. The instructor should report in writing any violation of the necessary facts. Final action may be determined by the instructor concerned or may be referred to an instructor of the same or a similar subject. The instructor concerned may also submit recommendations in each case for appropriate action.
Requirements for Admission

To qualify for admission to the College of Liberal Arts, the applicant must meet the college requirements outlined here and any special requirements for the program of his or her choice.

The University of Iowa requires all freshmen and undergraduate transfer students to complete the American College Testing (ACT) Assessment Program and have their test scores reported to the university before they register for classes. These examinations are used as a criterion for admission, for placement purpose, for advising, and for awarding university-administered scholarships and loans.

Entering Freshmen

An applicant seeking admission as an entering freshman must have the high school from which he or she 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. An applicant may be tentatively admitted after he or she has completed the junior year in high school, but admission will not be final until receipt of the final transcript and certification of high school graduation.

A graduate of an approved Iowa high school who is in the upper one-half of his or her graduating class and meets specific curricular requirements will generally be administratively certified of graduation. An applicant who is not in the upper one-half of his or her graduating class may be required to take special examinations, and, after a review of his or her entire record and at the discretion of the college, may be administratively certified, admitted on probation, required to enroll for a trial period during a succeeding summer session, or denied admission. An ACT score of 24 will be required for automatic admission of all Iowa resident high school graduates who are not in the top half of their graduating class.

A graduate of an accredited high school in another state will be expected to meet higher standards than the minimum requirements for a graduate of an Iowa high school. The options for admission by probation or trial enrollment may not be open to these students. Nonresident students must be in the upper thirty percent of their graduating class or must have an ACT score of 25 or above for automatic admission.

A graduate of a nonapproved high school must submit all data required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Transfer Students

Students from Accredited Colleges and Universities

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

Each applicant must submit an official transcript showing the original seal and signature of the official in charge of records from each college or university the student has previously attended. The applicant must also submit a high school transcript, scores on standardized tests, and any other records or letters that the College of Liberal Arts may require to support his or her application for admission.

A transfer applicant is expected to have maintained a C average (2.0 in a four-point system) for all college work attempted. Preparation in the liberal arts and sciences is recommended as a prerequisite for admission. Students who have been under suspension from the last college attended, Transfer applicants who are not residents of Iowa are expected to have maintained a 2.25 average. An applicant who does not meet this standard may be permitted to take entrance examinations. An applicant who successfully completes the examinations may be admitted to the college.

In general, transfer applicants under academic suspension from the last college attended will not be considered for admission during the period of their suspension. If a student seeks readmission after the indefinite period, will not be considered unless six months have passed since the last date of attendance. When eligible for consideration, the applicant will be considered on the basis of his or her performance on the entrance examinations.

A transfer applicant under disciplinary suspension will not be admitted unless he or she has been released from the previous suspension. An applicant granted admission under these circumstances will, in each case be admitted on probation, and his or her admission will be subject to cancellation.
The linguistics department offers six EFL courses for students who need to improve their English proficiency.

Nondegree Candidates
Under special circumstances, students may be admitted to the college as nondegree candidates. Such admissions may be for certain sessions or uncertain in length. Reassignment by such students may be contingent on University of Iowa grades. Courses taken by students in this category may not be used toward satisfying the residence requirement for graduation from the College of Liberal Arts.

Credit for Military Service
The admissions officer is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Education's Guide to the Evaluation of Experiences in the Armed Forces, with the understanding that any inconsistencies between such recommendations and the standards of the College of Liberal Arts will be returned to the Liberal Arts Advisory Office. Armed Forces Institute correspondence courses may be considered for credit under appropriate circumstances.

Nondepartmental College Courses
Unified Program Courses:
Under 45: Humanities I, II, III
00047 Politics I
00048 Introduction to World Religions
00049 Health I, II
00051-052 Science I, II
00053-054 Theory
00056 Basic Mathematics
Other Nondepartmental Courses
Courses numbered 10 and 11 are nondepartmental courses used principally in satisfying college course requirements for graduation.

10-11: Restructured and reorganize to include a focus on English as a second language.

Aerospace Military Studies
Department head: U. Col. James P. Whitworth
Professor: U. Col. James P. Whitworth

The Department of Aerospace Military Studies administers the Air Force Reserve Officers Training Corps (AFROTC) at The University of Iowa. The purpose of AFROTC is to recruit, educate, and commission highly qualified students to be officers in the United States Air Force.

AFROTC is an enlistment voluntary and the courses are open to all undergraduate and graduate students. The amount of credit given toward a degree for AFROTC academic work varies with the colleges at the University.

In order to receive a commission, AFROTC cadets must complete all University requirements for a degree and complete the training prescribed 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. These courses are highly recommended. Any cadets who are not mathematics majors must satisfactorily complete an introductory mathematics course prior to commissioning.
Four-Year Program

The four-year program consists of the General military course (GMC) and the Professional Officer Course (POC). The GMC affords a no-obligation look at AFROTC. In addition, books and uniforms for AFROTC classes are provided.

The GMC consists of four one-credit AFROTC courses and the leadership laboratory. Normally, as a freshman a student takes 23A:H-12 & The Air Force Today and as a sophomore takes 23A:01-32 & Development of Air Power. To be considered an AFROTC cadet a student must also take 23A:96-97 Leadership Laboratory.

The professor of aerospace studies may grant 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 a student completes the GMC in one year. Sophomores would take the freshman and sophomore sequence simultaneously. This results in two semester hours of AFROTC plus two leadership laboratories per semester.

Two-Year Program

The two-year program consists of field training and a Professional Officer Course (POC). Entry into the two-year program is competitive and requires a student to have at least two academic years of attendance and a graduate work remaining in college. The POC consists of three three-credit AFROTC courses and the Leadership Laboratory. In combined classes, juniors and seniors take 23A:114-115 Management and Leadership along with 23A:112-113 National Security Forces in Contemporary America and Society.

Students desiring to enter the two-year program should contact the professor of aerospace studies by the last day of classes before the fall semester of their junior year. Applicants must be avaled on the basis of college marks, 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 field training, and the recommendation of the professor of aerospace studies. Students accepted into the two-year program are required to serve a minimum of four years as a U.S. Air Force officer.

Leadership Laboratory

Leadership Laboratory is a self-centered activity. It is largely cadet-planned and directed toward providing leadership training experiences which will improve a cadet’s ability to perform as a U.S. Air Force officer. Freshmen and sophomores learn air force customs and courtesies, drill and ceremonies, wearing of the uniform, and the benefits of an air force career. Juniors and seniors plan and direct the Cadet Corps activities.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base during the 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, surgery, 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.

Flight Instruction Program

AFROTC cadets desirited pilot candidates and not certified as private pilots participate in the Flight Instruction Program. Normally during the senior year these students receive 13 hours of flying lessons from the Iowa City Flying Service.

The program also includes 22A:50 Basic Flight Ground School, taught by a U.S. Air Force pilot or navigator in AFROTC classrooms, Ground School includes instruction in meteorology, principles of flight, radio communications, and FAA regulations.

Special Activities

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

Cadets can join the Amorit Air Sporety, a national professional honor 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 and receive authorized pay and allowances.

Selected AFROTC cadets may attend airborne training and upon completion wear the army parachute “jump wings.”

Financial Assistance

AFROTC scholarships are available for four, 3 1/2, 3, 1/2, and 2 years. In addition, 3- and 2-year pre-health professions and 2-year nursing scholarships are offered. All scholarships are based on merit and provide full tuition, books, laboratory fees, and $100 a month tax-free. Applicants are selected using both objective and subjective factors. Students should apply directly to the professor of aerospace studies.

All cadets in the last two years of AFROTC receive $100 a month tax-free AFROTC books and uniforms are furnished.

Educational Delay

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

Courses

23A:11 The Air Force Today 1.5 hrs.

IntRODUCTION TO THE U.S. AIR FORCE, INCLUDING MISSION, ORGANIZATION, ANDHasKey: U.S. MILITARY FORCE, AND SOVIET THREAT; EMPHASIZES STUDENT’S WRITING SKILLS. OFFERED FALL SEMESTERS.

23A:17 The Air Force Today 1.5 hrs.

Continuation of 23A:11. OFFERED SPRING SEMESTERS.

23A:21 The Development of Air Power 1.5 hrs.

Traces the historical development of U.S. air power from earliest days of technology to the contemporary era. Emphasizes student’s reading and research skills. OFFERED FALL SEMESTERS.

23A:22 The Development of Air Power 1.5 hrs.

Continuation of 23A:21. OFFERED SPRING SEMESTERS.

23A:50 Basic Flight Ground School 3 hrs.

Prepares students to pass FAA private pilot’s written exam; includes study of aircraft systems, meteorology, radar, air navigation, navigation, flight planning, and emergency procedures.Credit 4 hrs. Course does not include flight training.

23A:96 Leadership Laboratory 0.5 hrs.

Cadet planned and directed activities aimed at developing leadership and management skills through participation in Cadet Corps activities. Actual hours of instruction may vary, but at least 70 hours must be performed as a U.S. Air Force officer. OFFERED FALL SEMESTERS. MAY BE REPEATED FOR CREDIT.

23A:97 Leadership Laboratory 0.5 hrs.

Continuation of 23A:96. OFFERED SPRING SEMESTERS. MAY BE REPEATED FOR CREDIT.


As a member of the armed forces the student examines the contemporary American society, implies civil-military relations and the way U.S. society is governed. Focuses on historical, social, and cultural aspects. OFFERED FALL SEMESTERS.


Continuation of 23A:113. OFFERED SPRING SEMESTERS.

23A:116 The Art of Leadership 3 hrs.

Examines theory and application of leadership concepts of management and relates management theories and practices; emphasizes all
Afro-American Studies

Program Chair: Daniel T. Turner
Faculty: professor Daniel T. Turner (English-Afro-American Studies); assistant professors Andrew D. Woodard (English-Afro-American Studies); assistant professors Jonathan Harries-McIntyre (Afro-American Studies), Africana Management (Afro-American Studies). Degree offered: M.A.; also degree concentrations leading to B.A., M.A., and Ph.D. in American Studies.

The Afro-American Studies Program is interdisciplinary, and it also draws cooperating faculty from various departments, including American Studies, Anthropology, Education, English, French, Geography, History, Political Science, Spanish, and Sociology.

The Afro-American Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States of America from the earliest times to the present. To provide a comprehensive view of that subject, the program also offers courses exploring the history and culture of other African peoples and their impact on African cultures. Because a thorough understanding of Afro-American culture cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences.

Although the program at present emphasizes history and literature, the Afro-American studies steering committee engages in a continuous effort to expand program perspectives by developing courses which will have the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1969 in courses intended to foster awareness of the role Afro-Americans have taken in the development of the United States, and to promote understanding of the present conditions and concerns of Black Americans. Since then, these courses have been organized into a curriculum that includes a program leading to an undergraduate minor in Afro-American studies, a Master of Arts degree in Afro-American studies, and concentrations of Afro-American studies leading to a B.A., M.A., or Ph.D. in American studies. It is also possible for students seeking Ph.D. degrees in English or History to organize courses in Afro-American history into a special field or Prosperity area.

Although most of the students in the Ph.D. program are preparing to work in colleges and universities as teachers and administrators, the B.A. and M.A. programs provide valuable backgrounds for many other students seeking careers in community work, public school teaching, religion, government, and political science. In short, the Afro-American Studies Program offers training important to any individual whose career will require understanding and knowledge of Black Americans.

Undergraduate Study

The Afro-American Studies Program offers a minor to undergraduate students. The semester hours required for the minor conform to the number specified for all minors in the College of Liberal Arts. In consultation with his or her advisor, the student selects 18 semester hours in designated Afro-American Studies courses. Lists of such courses are available in the office of Afro-American Studies (303 English-Philosophy Building) in the Library Arts Advisory Office, and the offices of most departments.

Although the Afro-American Studies Program does not offer a major leading to a degree in Afro-American Studies, students interested in the field may concentrate on Afro-American studies in a program leading to the B.A. degree in American studies. Such a concentration would include 45-45 credits of literature of the American People, 45-09 Introduction to Afro-American Culture, and five electives from courses numbered 45-10 through 45-99, recommended as background for more advanced courses in Afro-American literature and history.

The Master of Arts Program

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

Curriculum Requirements

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

Required courses include 45-21 Introduction to Research in Afro-American Culture, 45-312 Advanced Research in Afro-American Culture, and 12 semester hours of required courses in Afro-American studies.

Most students will be required to earn 6 semester hours of research credit (45-211) to complete 45-116-117 Afro-American Literature I and II. Two of the following: 45-150 Afro-American History 1860-1892, 45-160 Afro-American History 1892-1914, 45-168 Afro-American History 1914-1943. Students who have earned undergraduate or graduate credit in either Afro-American History or Afro-American History may be required to complete both 45-116-117 Afro-American Literature I and II and the following—45-150 Afro-American History 1860-1892, 45-160 Afro-American History 1892-1914, 45-168 Afro-American History 1914-1943—with only 6 hours of credit toward the M.A. degree. A student will be permitted to take, under the guidance of his or her major advisor, any other 9 semester hours required in the Master of Arts program to be used to explore doctoral education in disciplines outside of Afro-American studies. Among possible fields of study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least 1 course in an area of concentration in their curricula from those numbered 45-00 through 45-99.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American studies, but individuals desiring the possibility of doctoral study in another field are encouraged to attempt to complete one tool/language requirement for that field while studying at the master's level.
Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American Studies. The comprehensive examination will be prepared and evaluated by a committee of faculty members who teach courses in the Afro-American Studies program. A component of the comprehensive examination will be based on a reading list in Afro-American studies prepared and approved by the Afro-American studies steering committee.

Thesis/Project Requirements

A thesis is not required for a Bachelor of Arts degree in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must utilize research from more than one discipline. The maximum credit for such a thesis is a seminar hour, and election of a thesis eliminates the requirement of 45-112 Advanced Research in Afro-American Culture.

A student who does not elect to prepare a thesis is required to develop, in consultation with an advisor, a project related to Afro-American culture and/or experience. When completed, this project must be presented to and defended before an appropriate class in Afro-American studies.

Admission Requirements

In addition to the general requirements of the Graduate College, unconditional graduate or professional status in the Afro-American Studies Program requires that a student have an adequate educational background in literature and the social sciences, equivalent to at least 60 semester hours of college credit in Afro-American Studies. In addition, a student must have successfully completed a minimum of 6 semester hours of college credit in Afro-American Studies. A student may be admitted to graduate study, with credit toward a master's degree, on the basis of a well-prepared written statement of intent and recommendation by three members of the Afro-American Studies faculty. Admission to graduate study is subject to the approval of the Graduate College and the Afro-American Studies Program.

Cognate Areas, Special Fields

It is possible for students to take concentrations of Afro-American courses as cognate areas or special fields in Ph.D. programs in history, philosophy, and other disciplines. For further details, consult an advisor in Afro-American Studies.

Cocurricular Activities Related to Afro-American Studies

Black Kaleidoscope

Periodically the Afro-American Studies Program attempts to promote knowledge and understanding of Afro-American culture by sponsoring Black Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in Afro-American culture.

Institute in Afro-American Culture

From 1968 through 1978, The University of Iowa each summer served as host for an Institute in Afro-American Studies for college and university teachers. The institute, which brought renowned artists and lecturers to the campus, focused on such topics as the Harlem Renaissance, Richard Wright, W.E.B. Dubois, Black American theater, and slave narratives. Although students in residence at the University are not eligible to be official members of the Institute, they are permitted to enroll in the three-semester-hour course which is offered at the same time as the institute and on the current year's topic. The program plans to offer (institutes in future summers)

Black Action Theater

Academically sponsored through the Afro-American Studies Program, Black Action Theater affords participants involvement in experimental productions of plays by Black authors.

Afro-American Cultural Center

The Afro-American Studies Program encourages participation in the facilities of the Afro-American Cultural Center. The Center serves as both a museum and library of educational and cultural artifacts and exhibits of black culture. Thus, it provides cultural enrichment for Black people of the Ames City Community and a cultural meeting place for Black students. It also attempts to promote a knowledge of Black culture which will improve intercultural understanding among all members of the University community.

Black Genesis Troupe

The Afro-American Studies Program also encourages participation in Black Genesis Troupe, a student organization which blends dance, music, poetry, and visual and audio presentations of Black culture and history.
Primarily for Graduate Students

4520 Readings in the Culture of Black America 2 sh
Overview of the social, economic, political, and religious experiences which have influenced Black American life.

4521 Instruction in Research in Afro-American Culture 3 sh
Methodologies, techniques, issues and resources significant in the study of Afro-American culture. Required of graduate students concentrating in Afro-American studies.

4522 Advanced Readings in Black Culture 3 sh
Students are exposed to racial and ethnic analyses of works by Black writers; the grading is determined by instructor. Same as E 612.

4510 Policies and the Black Child 2 sh
The role of the media in the formation of national ideology among selected Black writers; reading list determined by instructor.

4529 Religion and Black Culture 3 sh
Institutions of Black culture, beliefs, and philosophies in various sections of the world. Same as 3021.55.

4527 Three African Writers 3 sh
Same as G 221.

4515 Seminar: Afro-American History 3 sh
Same as 1666.

4520 Readings: Afro-American History 3 sh
Introduction to prehistory, coloniality, and methodology for the study of Afro-American History. Same as 1666.

4520 Seminar in the Study of Afro-American Literature 3 sh.
Events, folk traditions, ethnic customs, myths, legends, and individuals as sources of artifact in Afro-American literature.

4530 Advanced Research in Afro-American Culture 3 sh
Seminar or independent study project for graduate students concentrating in Afro-American studies. Prerequisite: 4521 or equivalent. Same as 4521.

4534 Seminar Advanced Study in Afro-American Drama 3 sh
In-depth study of selected Afro-American playwrights or performances. Required 45 420 or equivalent, or consent of instructor.

4540 Seminar Advanced Study in Afro-American Poetry 3 sh
In-depth study of selected Afro-American poets. May be taken independently. Prerequisite: 45 117 or equivalent, or consent of instructor.

Aging Studies Program

Coordinator: Harriet Nolen
Advisory Committee: 
- National Page Program (Department of Psychology)
- Administration Committee, James O. Beak (Chairman), Lorraine Damon (Student Advisor), Samuel Tal (Acting Director), Mr. Green (Secretary), Mr. Norman (Treasurer)
- American Psychological Association, Mr. Benjamin (Chairman), Mr. Green (Secretary), Mr. Norman (Treasurer)
- Elderly Commission on Aging, Mr. Nolen (Chairman), Mr. Green (Secretary), Mr. Norman (Treasurer)
- Gerontological Research, Mr. Nolen (Chairman), Mr. Green (Secretary), Mr. Norman (Treasurer)

The Aging Studies Program at the University of Iowa is designed to provide undergraduate and graduate students a multidisciplinary approach to gerontology. The program consists of courses that have been coordinated to present 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 course work related to aging at the 400-level or above. This aging-specific course work is defined as courses within the University that are primarily focused on older persons, the aging process, or preventive methods or techniques with the elderly or aging as the target.

Students will be required to take an introductory aging course, and either a research seminar or practicum in aging. Elective courses may be taken in the program. The research project or the practicum should not be taken until the first nine semester hours of the program are completed.

Program Eligibility

The program is open to all interested graduate, upper-level undergraduate (must have completed 48 semester hours), and special status students whose particular career 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 students and their advisors to develop the plan of study to complement each student's academic program and career interest. Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program will include the required coursework, as well as any recommendations for the sequence of program work to be taken. The coordinator will keep a record of the student's approved program and the student's progress. Upon completion of the program, the coordinator will confer the degree of Master of Science. Students will be advised in conjunction with the program on the student's transcript.

Courses

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

Introductory Courses

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

117:08 Basic Aspects of Aging
34:112 Aging and Society
42:184 Multidisciplinary Perspectives on Aging

96:210 Introduction to Gerontology

Practicum and Research Courses

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

17:119 Directed Studies in Family Development
42:184 Multidisciplinary Perspectives on Aging

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

Elective Courses

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

American Studies
45:112 Aging in America

Anthropology
113:149 Special Topics in Anthropology

Business Administration
67:123 Public Economic Security Programs

Counselor Education
72:200 TOPRA Seminar in Counselor Education

Dentistry
12:145 Introduction to Geriatric Dentistry

Family Practice
115:511 Perspectives on the Process of Aging

Health and Hospital Administration
69:208 Long-Term Care Administration

Home Economics
17:211 Individual and Family Development Life Skate (partial credit)
basic requirements. One is that all students directly engage, in course work and reading, the cultural Milieu of American life and experience. Some course work is expected in such areas as Afro-American studies and women's studies, this will be specifically explored on the candidate's oral exam. A second requirement is that each program will include substantial study of one period of American cultural history as defined to reflect the student's specific interests. Hence, history is considered either background to or the actual content of all doctoral programs. The candidate normally takes 45-200 Theory and Practice in American Studies and 45-201 History, Literature, and Culture large first-year of graduate study, and may include 45-590 Special Graduate Projects among the two or three other courses he or she takes in the area of interdisciplinary approaches and methods in American studies. Instead of a written examination in this area, the student prepares a position paper or interdisciplinary essay. The student normally takes six or seven courses (18-21 semester hours), including tutorials, in each of his or her two major areas. Four-hour written examinations on each of the major areas, together with the interdisciplinary position paper or essay, provide the basis for the candidate's oral final examination. The student also takes three or four courses, on the cultural Milieu of a specific topic or subdiscipline, as one minor area. Instead of a written final examination, the candidate prepares an annotated bibliography on the minor field for evaluation. The candidate should take a comprehensive written examination in her or his comprehensive examination committee. A candidate who has already submitted an annotated bibliography has the option of taking a two-hour written examination based on an abbreviated reading list. The tools and skills area or minor field must include at least 8 semester hours of graduate-level course work in international studies, film, linguistics, computer science, statistics, etc. In addition, up to 6 semester hours from courses in research and writing, teaching methods, and/or courses on American studies topics outside the major and minor areas may be included in the area. In demonstrating mastery of one tool or skill useful for culture studies, the candidate must take at least two graduate-level courses in this area. The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation will illuminate the cultural Milieu of American life and experience. The candidate may present a topic to the committee on such as fiction, autobiography, film—combined with a critical analysis of the cultural experiences the thesis reflects, but permission to make the topic such a thesis will not be routinely given.

Internships
Qualified graduate students in American studies can arrange internships with the State Historical Society of Iowa, the Division of Historic Preservation, The University of Iowa Museum of Art, the Iowa Humanities Board, Living History Farms, the Herbert Hoover National Historic Site, and the Pottery Museum, Davenport. A candidate conducting research during such on-the-job training may receive academic credit. Other internships in social agencies, government, or diplomatics may also be arranged and course credit allowed when a research component is included.

Courses
Primarily for Undergraduates
45-070 Cooperative Education Internship 1 a.
45-010 American Values 1 a.
Introduction to American studies on representative texts, artifacts, and cultural values in historical and contemporary perspective.
45-030 American Issues 1 a.
Topics and problems in American studies.
45-050 Women in American Culture 1 a.
Topics include prominent women, women and work, women's popular culture, American women's films.
45-060 Family and Sex Roles: Alternatives to Marriage 1 a.
The American family, homosexuality in American history and culture, alternatives to marriage.
45-070 Media Studies 1 a.
Studies in film, television, cartoons, the new journalism.
45-080 Regional Studies: The American West 1 a.
The American West: The southern and northwestern cultural landscapes.
45-090 Music 1 a.
Music: Jazz, folk, rock 'n' roll.
45-100 Banking and Finance 1 a.
International and transnational finance and culture.
45-105 World and Culture: America Life 1 a.
Study of American culture, literature, and music.
45-130 Psychology and Culture 1 a.
Study of American culture, literature, and psychology.
45-135 Child and Family in America 1 a.

For Undergraduates and Graduates
45-130 Readings in American Studies 1 a.
45-132 American Folk Literature 1 a.
Same as 111.
45-132 World and Culture: American Life 1 a.
Same as 120.
45-132 Psychology and Culture 1 a.
Same as 125.
45-135 Literature and Culture of America Before 1865 1 a.
This paper will focus on American studies, culture, through historical records, artifacts, and the arts; special attention to problems of societal context, and their cultural and historical currents. Same as 121.
45-135 Child and Family in America 1 a.
Study of American culture, literature, and psychology.

45-152 Caring for America 3 a.
Social, demographic, historical, and methodological perspectives on American life and thought.
45-156 Visual Arts and American Culture 3 a.
Artistic, social, and cultural experiences of American life and thought.
45-157 Medieval Culture: American Vernacular Architecture 3 a.
Historical and cultural studies of vernacular architecture, rural and urban, chiefly of the East Coast.
45-163 American Society 3 a.
45-175 American Communities: The Community Study 3 a.
Fieldwork interdisciplinary study of an American scene via田野, social, and cultural analysis.
45-184 American Communities Ethnography 3 a.
Ethnographic and cultural studies in the vernacular culture, rural and urban.
45-185 Anthropology and American Culture 3 a.
Topics in American cultural life and the folk experiences of sub-culture members as reflected in anthropology, whose complex cultures reveal their social and cultural complexity.
45-190 Teaching American Vernaculars in High School and Community College 3 a.
Same as 74-100.
45-190 Popular Culture 3 a.
Examination of several features of American popular culture, such as the detective novel, the Western, the television drama, emphasis on their relation to other features of American life.

Primary for Graduates
45-200 Theory and Practice in American Studies 4 a.
Theories, methods, and cases in American culture studies, with special attention to social science methods.
45-201 History, Literature, and Culture 3 a.
Applying sociologically informed and interpretive methods to the analysis of American culture and subcultural experiences.
45-230 Special Graduate Projects 1 a.
Research in advanced topics in American culture that seeks to contribute to a broader understanding of American culture.
45-250 Seminar in American Studies: Bibliography 3 a.
Same as 250.
45-250 Special Graduate Projects 1 a.
45-250 Seminar in American Film and American Culture 3 a.
Instruction in the methods and theories of film and American culture, and the complex cultural and historical relationships between film and culture.
45-250 Special Graduate Projects 1 a.

Anthropology
Department chair: Keith M. Mitchell
Adjunct professors Andrew K. Fisher
Associate professor Andrew C. Anderson, Tony Hourigan (teaching)
Deans' office: B-14, M. J. A., Ph.D.
Anthropology offers a program in anthropology that is designed to provide a foundation for the study of human behavior. This program is intended to provide an understanding of the place of human beings

45-152 Aging in America 3 a.
Social, demographic, historical, and methodological perspectives on American life and thought.
45-156 Visual Arts and American Culture 3 a.
Artistic, social, and cultural experiences of American life and thought.
45-157 Medieval Culture: American Vernacular Architecture 3 a.
Historical and cultural studies of vernacular architecture, rural and urban, chiefly of the East Coast.
45-163 American Society 3 a.
45-175 American Communities: The Community Study 3 a.
Fieldwork interdisciplinary study of an American scene via田野, social, and cultural analysis.
45-184 American Communities Ethnography 3 a.
Ethnographic and cultural studies in the vernacular culture, rural and urban.
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Topics in American cultural life and the folk experiences of sub-culture members as reflected in anthropology, whose complex cultures reveal their social and cultural complexity.
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Same as 74-100.
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Primary for Graduates
45-200 Theory and Practice in American Studies 4 a.
Theories, methods, and cases in American culture studies, with special attention to social science methods.
45-201 History, Literature, and Culture 3 a.
Applying sociologically informed and interpretive methods to the analysis of American culture and subcultural experiences.
45-230 Special Graduate Projects 1 a.
Research in advanced topics in American culture that seeks to contribute to a broader understanding of American culture.
45-250 Seminar in American Studies: Bibliography 3 a.
Same as 250.
45-250 Special Graduate Projects 1 a.
45-250 Seminar in American Film and American Culture 3 a.
Instruction in the methods and theories of film and American culture, and the complex cultural and historical relationships between film and culture.
45-250 Special Graduate Projects 1 a.

Anthropology
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Field Research
Opportunities are available for students to participate in archaeological field research in central Mexico, the U.S. Southwest, or at various sites in Iowa. Under the direction of University anthropology faculty, participants acquire skills in data recovery and interpretive techniques.

Master of Arts
The M.A. program is general in nature, designed to prepare the student to deal with any aspect of anthropology at an introductory level. The department offers the M.A. degree with or without thesis. The program without thesis precludes consideration for admission to the Ph.D. program. The number of semester hours of credit required for the M.A. with thesis may vary from 30 to 36, depending upon the student's previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. A 36-hour M.A. degree without thesis is available in conjunction with a minor concentration in museology. The following are the core area requirements at the M.A. level:
- Either
  113:240 Seminar: Social Anthropology or
  113:201 Seminar: Anthropological Theory

These four courses:
- 113:171 Anthropological Linguistics
- 113:266 Seminar: Anthropological Theory and Method
- 113:280 Seminar: Biological Anthropology
- 113:102 Anthropological Data Analysis
Two courses from the following subject areas:
- Social Institutions: Linguistics (including courses in the Department of Linguistics) and Archaeology.
- No more than nine semester hours of courses outside of anthropology and no more than three 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 or the above distribution requirements.

Anthropology/Museology Joint M.A. Program
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 museum studies. This program is designed to prepare students for either museum or museum-related careers. The program requires 36 semester hours of graduate studies, including 18 hours in anthropology, 18 hours in museum studies, and a satisfactory research paper. The student must also pass a comprehensive examination in both areas.

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. The specialization is an area of study at the University of Iowa, a current specialty in the area of specialization, and a competency in the area of specialization.

Training in a specialization will be guided by an advisory committee composed of members of the faculty competent in the particular areas and topics chosen by the student. The only limitations on program selection are based on the faculty's expertise in given areas or the feasibility of arranging for training and guidance.

These are the requirements:
- At least 72 hours of graduate course work;
- Demonstration of a reading knowledge of one or more languages;
- Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, paleontology);
- Ethnographic or archaeological specialization in a major geographic area (for example, North America, Southeast Asia, the Caribbean, Europe) approved by the student's Ph.D. 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. Levels of topical areas may serve either as major or minor areas in a student's specialization. Research in anthropology include: kinship or social organization, ethnolinguistic, economic anthropology, language and culture, religion, cultural ecology, and urban anthropology. Examples of possible general topical areas for students in this specialization include: settlement archaeology, environmental archaeology, and dating methods.
Graduate Minor in Anthropology

A graduate student from another department of the University may minor in anthropology. The number of credit hours and the selection of courses which constitute the minor should be determined in consultation with members of the faculty of the Department of Anthropology, and with appropriate members of the student's major department.

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.

Facilities

The Department of Anthropology has access to the Iowa Archeological Collections through the Office of the State Archaeologist, Prof. Thomas H. Martin, maintains a field laboratory in Mexico. The University is a charter member of the Human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. The HRAF and other library resources give anthropology students access to source materials on more than 460 different cultures.

Faculty

Members of the anthropology faculty have studied and lived in the Pacific islands, Asia, Europe, the Caribbean, Mesopotamia, South America, and the Subarctic. Department faculty have recently conducted field research in Mexico, Bolivia, Guatemala, Peru, Micronesia, Papua New Guinea, Thailand, the Canadian Subarctic, New Guinea, Trinidad, St. Lucia, Nigeria, Ghana, Argentina, Hungary, Iceland, the American Southwest, and Iowa. Recent research by department faculty includes: precontact trade networks and the role of hydraulic cultivation systems in the emergence of civilization in the Valley of Mexico, Plains-Pueblo interaction in the United States, historical archeology in Iowa, patterns of political and economic development of emerging nations, comparative ethnographic studies of hunting and gathering groups, and biocultural impacts of Indian sites in Iowa, alcohol use and abuse in Mursorsis and Mestizos, Mayan linguistics in Guatemala, market women in Peru, and agrarian and economic decision making among rural peoples in Thailand, Belice, and Iowa.

Courses

For Undergraduates Only

1530 Introduction to the Study of Culture and Society
4 cr.

1560 Anthropology and Contemporary Field Problems
3 cr.

1570 Introduction to Prehistory
3 cr.

1580 Introduction to Physical Anthropology
3 cr.

1313 Human Origins
3 cr.

1314 Language and Human Behavior
3 cr.

1325 Introduction to Modern Prehistory
3 cr.

1350 Introduction to Field Research in Anthropology or
Prehistory
3 cr.

1375 Individual Study
1-15 cr.

1387 Special Topics in Anthropology
1-15 cr.

1391 General Anthropology
1-4 cr.

1510-1560 Anthropological Data Analysis
4 cr.

1515 Introduction to Archival Research
3 cr.

1520 Introduction to Fieldwork
3 cr.

1525 Introduction to Fieldwork in Southeastern Europe
3 cr.

1535 Introduction to Fieldwork in Southeastern Europe or
Intensive Fieldwork in Anthropology
3 cr.

1540 Comparative Social Organization
3 cr.

1550-1560 Introduction to Indian Economic and
Social Organization
3 cr.

1555-1560 Agricultural Development in Southeastern Europe
3 cr.

1565-1560 Historical and Ethnographic Context of Southeastern Europe
3 cr.

1570-1580 History of Anthropology
3 cr.

1590 Comparative Social Organization
3 cr.

1600-1601 Ethnographic Methodology
3 cr.

1620-1621 Research Methods
3 cr.

1630-1631 Ethnographic Methodology
3 cr.

1640-1641 Ethnographic Methodology
3 cr.

1650-1651 Ethnographic Methodology
3 cr.

1660-1661 Ethnographic Methodology
3 cr.

1670-1671 Ethnographic Methodology
3 cr.

1680-1681 Ethnographic Methodology
3 cr.

1690-1691 Ethnographic Methodology
3 cr.
Individual Reading and Research Projects

113250 Independent Study Anthropology
113255 Independent Study Art History
113260 Years

Applied Mathematical Sciences

See "Mathematical Sciences."

Art and Art History

School Pronouns: Wallace J. Tompkin

The University of Iowa School of Art and Art History pioneered the artist-teacher concept, appointing its teachers on the basis of the quality of their work rather than the number of their degrees; it was one of the first university-based art programs 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 will benefit from a formal study of the traditions of art, and a prospective historian from personal experience with the creative process.

The emphasis on the creative productivity of its faculty—reflected in its educational philosophy that made it the first university in the nation to accept creative work for academic credit—led to its early adoption of national recognition for presenting large exhibitions of itswork by American painters and sculptors.

Its national image and position are maintained not only through The University of Iowa Art Museum, its program of exhibitions, and its growing collection of art works of all periods and nations, but also through its enrolling program of employing visiting artists and scholars of both national and international prominence.

The flexibility of its undergraduate and graduate programs in art history continues with the support of an excellent art library and a large collection of visual materials. The employment of visiting lecturers for short-term workshops, in addition to the permanent faculty, continues to keep students directly involved with current scholarship.

A number of the school's graduates enjoy success as practicing professional artists, art historians, art department administrators, museum directors and curators, and teachers. Regardless of employment depressions, graduates of the school have traditionally continued to find acceptable positions. This condition prevails. Although the emphasis has always been placed on the fine arts and specifically commerce, art courses are not part of the program, many graduates have taken positions as commercial designers.

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

Bachelor of Arts

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

Cross-listed courses originating in the School of Art and Art History may not be counted toward the following general liberal arts core or toward the major.

Art majors in the B.A. degree program may take three semester hours of Historical Perspectives general education requirement, those in the B.F.A. degree program may take six semester hours of Historical Perspectives general education requirement.

Studio Emphasis

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

Art History:
- Two courses 6 s.h.
- Selected from among 1H, 1H5, 1H8, and 1H16.

Additional Courses:
- Two additional courses exclusive of those courses listed above 6 s.h.

1A:3 glazed Drawing 2 s.h.
1A:4 Bakon Design 2 s.h.
1A:9 clay modeling and intro to sculpting 2 s.h.
1A:95 Ceramics 1 2 s.h.
1A:96 sculpture 2 s.h.
1A:98 Multi media 1 2 s.h.
1A:111 Undergraduate sculpture I 2 s.h.
1A:113 Undergraduate sculpture II 2 s.h.

One introductory studio course 4 s.h.

Electives to bring the total number of credits in History of Art, Studio, or Art Education combined to a minimum of 30 semester hours.

No more than 50 semester hours of credit in art courses the school sets 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 three semester hours in Art History, and 12 semester hours in studio beyond the six basic studio courses and including at least two different studio areas.

Undergraduate transfer students majoring in studio must, at their first registration, show either 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 stated, and six semester hours (two courses) from among 1H, 1H5, 1H8, and 1H16, plus 18 semester hours of intermediate and advanced art history.

Electives must total the required 124 semester hours to qualify for 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 minimum grade point average in art history of 3.5, and must complete six semester hours beyond the 15 semester hours of intermediate and advanced art history in a seminar and a written thesis, for three semester hours each.

Non-credits must include two or more semesters of a second foreign language, and at least 10 semester hours in at least three areas, including two of the following: English, history, literature, music, philosophy, religion, or sociology.
Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the student’s required minimum registration for courses in art history and studio.

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

1E:196 Concepts in Art Education
2 s.h.

1E:198 Art Education Studio 3 s.h.

7E:143 Methods: Art 3 s.h.

7S:105 Advanced Methods: Art 3 s.h.

7S:47 Seminar: Curriculum and Student Teaching 3 s.h.

7E:152 Lab Practice in Elementary School 6 s.h.

7S:151 Observation and Lab Practice in Secondary School 6 s.h.

The following course is elective:

1E:230 Art Education and the Museum 3 s.h.

Bachelor of Fine Arts (studio only)

Prospective B.F.A. students must apply to enter the program following completion of at least one semester of work in the studio area of concentration, but before completion of 50 semester hours in art.

The B.F.A. requires 62 semester hours of credit in School of Art and Art History courses. In addition to the general education requirements (see “Core of Liberal Arts” section), the student must complete three courses in studio art of concentration beyond the fundamental course, and must complete at least the second semester of studio coursework in each of two additional studio areas. Art education majors in the B.F.A. program must meet the same teacher certification requirements as those in the B.A. program.

Master of Arts in Art History

An M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline, become familiar with major periods and monuments of world art, and gain proficiency in techniques of research within a specific area. Specific requirements include:

- A B.A. or B.F.A. degree, with at least 18 semester hours of graduate work in art history.
- A minimum of 30 semester hours of graduate-level course work, with a grade-point average of 3.0 or higher.
- At least one seminar (unimposed) (100-level) course, and at least 3.0 grade-point average in each of five of the following areas of art history:
  - Ancient (to 300 A.D.)
  - Medieval (500-1500)
  - Renaissance to Baroque (1500-1750)
  - Nineteenth Century to Modern
  - Oriental
  - Pre-Columbian

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

IHR 294 Seminar: Methodology of Art History and Criticism 3 s.h.

Two other art history seminars (with different instructors) 4-6 s.h.

Additional art history courses 14-21 s.h.

Studio courses 9-12 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 may be exempted from the graduate studio requirement.

A student preparing to teach in both the art history and studio areas will take 12 to 18 semester hours of studio course work, with a minimum of nine semester hours in one subject, in addition to the undergraduate requirement for a studio major, and will also satisfy the drawing requirement. Studio courses may be taken on a satisfactory/unsatisfactory basis.

A candidate with undergraduate majors in art history are encouraged to take courses outside the school.

Within the first 20 semester hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read art historical works in an appropriate foreign language, normally German or French, though other languages, including Oriental languages, may be acceptable. This requirement may be satisfied by the Graduate School Foreign Language Test (GSFL), examination by the appropriate University of Iowa language department, satisfactory completion of the fifth semester of a Ph.D. language reading course, or satisfactory completion at least a 3.0 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 three 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 arts with concentrations in design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printsmaking, or sculpture. The student may choose:

- The B.A. or B.F.A. in art equivalent to that offered at the University of Iowa (studio art degree). The requirements 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, nine semester hours in the history and theory of art, and up to eight 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 for 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 offer an art history minor of 15 semester hours, which includes the Core of Liberal Arts Methodology of Art History and Criticism, and one other seminar. These hours are in addition to the 36 hours required for the art history major (except for the second foreign language), and in combination with the undergraduate hours must satisfy the distribution requirement for art history.

Master of Arts in Art Education

Requirements for the M.A. in art education are:

The B.A. or B.F.A. in art 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 and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and six in art history, or six in studio and 12 in art history), eight semester hours in graduate seminars in art education.
and 12 semester hours to be specified after the student commences the program.

An oral and/or written examination in art education for M.A. candidates

A written thesis based on research in art education or art history or a studio thesis (a studio thesis must be accompanied by a draft statement or the student's technical, aesthetic, and/or psychological approach) and, as in the M.A. degree in studio, for M.A. candidacy by faculty review.

Art education majors who elect to do a studio thesis and who have not had drawing at the University of Iowa are required to take at least one drawing course, selected from among the school's regularly scheduled drawing courses, during the first year in 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, fine/working and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The M.F.A. candidate must have an M.A. degree in an 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 six semester hours in a minor studio subject, and six semester hours in a minor field and theory of art, and eight semester hours in courses outside the school; clearance for M.F.A. candidacy by faculty review of studio and written thesis. Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Doctor of Philosophy (art history only)

The Ph.D. student is expected to have a broad general knowledge of art history and to acquire detailed knowledge of monuments, an understanding of artistic development, and a knowledge of methods of research within certain specialized areas of world art to be selected by the student in consultation with appropriate faculty members in the school.

No more than 38 semester hours of credit earned in an M.A. program may be applied toward the doctoral 90 semester hours required for the Ph.D.

The University of Iowa's residence requirement for the doctorate must be met by enrollment at this University as a full-time student in each of two semesters beyond the first 24 semester hours of graduate work.

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

Two art history seminars (with two different instructors) 4-6 s.h.

Additional art history courses 18-28 s.h.

Courses outside the school 0-12 s.h.

Students holding the M.A. from another institution must take the school's M.A. comprehensive examination within the final two regularly scheduled examination times following admission.

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

The student must take a comprehensive examination in one major field (six semester hours) and two minor fields (three semester hours each) selected by the student in consultation with the adviser and approved by the art history faculty. At least one minor must be concerned with an art historical period or area remote from the major field. One minor field may be related to the major; this field may be in a discipline or disciplines outside the school, for example, religion, history, or philosophy.

The student must prepare a written dissertation consisting of an original scholarly contribution to the field. The school will allocate a minimum of six 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 include a committee review of applications and an interview with the applicant's supporting material. Contact the school for meeting dates.

Ceramics, design, metalworking, jewelry, multimedia or video art, or painting majors must submit slides and/or photographs of their work in their major fields; only applicants who are in residence at the University may submit original work in these areas. Drawing majors must submit original drawings or figure drawings. Thesis majors must select from the 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture students should send 8-10 black-and-white photos—slides, if color is important—or their work. Studio applicants must also submit examples of their work in other areas, and must submit three letters of recommendation. Newly admitted students who do not register within two semesters of their admission must reapply. Students who attend for a limited time and thereafter interrupt their studies for two or more years must reapply for admission.

Graduate Admission: Art History and Art Education

Applicants to the graduate program in art history must submit a term paper or one 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 typed 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 registration.

Assistantships and Scholarships

Assistantships paying approximately $6,000 per academic year for 20 hours of departmental duties weekly are awarded to graduate students on a competitive basis. One-quarter assistantships are also available. The award of an assistantship entitles the recipient to the in-state tuition rate.

Scholarships paying partial or full tuition and entailing no departmental duties require at least a 3.0 cumulative grade-point average. Those financial aids are generally 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 60,000 volumes; a visual materials library containing 325,000 slides and 80,000 photographs, an integral printshop, furnaces and equipment for large-scale iron and bronze casting processes as well as facilities for welding and fabrication of steel sculpture; a well-equipped darkroom; extensive skin facilities, including provision for construction of various types of temporary and specialized kits; a large shop for wood-working, metal-working, and industrial design; electroforming
Courses Primarily for Graduates

16320 Seminar: Problems in African Art 3.0
16316 Seminar: Problems in Oriental Art 3.0 Same as 30.295.
16344 Seminar: Problems in Northern Renaissance Art 3.0
16274 Seminar: Problems in Italian Renaissance Art 3.0
16350 Seminar: The History of Art and Criticism 3.0
16232 Seminar: Problems in Modern Art 3.0
16286 Seminar: Problems in American Art 3.0
16377 Seminar: Methodology of Art History and Criticism 3.0
16369 Seminar: North American Indian Art and Archaeology 3.0
16379 Seminar: Problems in Medieval Art 3.0
16394 Seminar: Problems in Religious Art 3.0
16398 Seminar: Problems in问题 3.0

Studio

Studio courses numbered through 999 are primarily for undergraduates and may not be repeated for credit except where indicated. Studio courses numbered 100 through 199 may be repeated for credit except where specified.

1A 4 Art Studio
1A 5 Art Studio
1A 6 Art Studio
1A 7 Art Studio
1A 8 Art Studio
1A 9 Art Studio
1A 10 Art Studio
1A 11 Art Studio
1A 12 Art Studio
1A 13 Art Studio
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1A 99 Art Studio
At least one course on the history of the area whose language they are studying, chosen from: 39.133 History of Ancient and Traditional India
39.134 Imperialism and Modern India
39.153 Traditional China
39.154 China: Opium War to Mao
39.153 Premodern Japan
39.154 Modern Japan

Other courses on Asia 100-level or above:
for those taking Chinese or Japanese
for those taking Sanskrit

Many students find a Program in Asian Studies major is conveniently combined with a major in history, political science, art history, religion, business, anthropology, or another discipline.

Chinese, Japanese, or Sanskrit

This program is tailored for students who wish to achieve all of the following: understand, read and write Chinese or Japanese, or to read Sanskrit; and to gain knowledge of the literature of China, Japan, or South Asia. Majors are required to complete advanced courses distributed as follows:

For students of Chinese:
39.10-11 Second Year Chinese
39.105-106 Third Year Chinese
39.141 Chinese Literature:
Pinyin
39.142 Chinese Literature: Prose

For students of Japanese:
39.10-11 Second Year Japanese
39.105-106 Third Year Japanese
39.121 Traditional Japanese
39.124 Modern Japanese Fiction in Translation

For students of Sanskrit:
39.23-24 Second Year Sanskrit
39.185-187 Third Year Sanskrit* 6 s.h.
39.130-136 Indian Literature 6 s.h.
39.163 Indian Religious Texts 3 s.h.

*With the approval of the departmental advisor, students may substitute, for third year Sanskrit, as semester hours of 100-level courses in South Asian studies.

Students are strongly urged to fulfill the general education requirement to understand the historical perspectives by completing 39.55-56 Civilizations of Asia.

Honors
Students with junior status who maintain a 3.5 grade-point average or above are encouraged to enroll in the Honors Program. With the permission of the departmental chair and a faculty sponsor selected from among Asian specialists in any department, the student will register for 39.191 Honors Tutorial and 39.195 Senior Honors Thesis. To receive a B.A. with honors, it is required that the student complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Master of Arts
Graduate study in Asian civilization is designed to prepare students for careers in teaching, diplomatic service, or commerce, in which a knowledge of Asian languages or a culture would be helpful. It also provides excellent preparation for an advanced study on the doctorate level.

All students are required to write an M.A. thesis in English using Chinese, Japanese, or Sanskrit language sources. The thesis may count for four semester hours of the 30 required. All students must maintain a 3.0 minimum grade-point average.

By the end of the final semester of residence, students will be expected to demonstrate, by a departmental examination, language competence at the following levels:
for students of China, four years of modern Chinese and one year of Classical Chinese;
for students of Japan, three years of modern Japanese and the following courses at the fourth year level: Intermediate Japanese 191, 192; and Readings in Modern Japanese at the fourth year level, and Readings in Japanese Literature Texts;
for students of South Asia, three years of Sanskrit (two years for students of modern South Asia).

In addition, students will be examined on the history of China, Japan, or South Asia, and in two appropriate areas from Asian civilization: literature, art, or religion; philosophy; or political science. The department can accommodate native speakers of Chinese or Japanese who wish to write toward professional competence in Asian civilization. A curriculum for such a student would exclude any modern language work, and would include 26 semester hours of content courses on Asian, as well as four semester hours for the M.A. thesis. All candidates are expected to fulfill the general requirements of the Graduate College.

Graduate Admission
Applicants for admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 2.75 is required for conditional admission, 3.0 for regular admission.
Individual Study for Advanced Students

39:111 HONORS TUTORIAL
Offered on satisfactory-fail basis.

39:116 Senior Honors Thesis

20:300 Methods of Teaching Chinese
2 s.h.
Introduction to the second principles of elementary language instruction. Prerequisites: 39:106 or equivalent.

30:200 Methods of Teaching Japanese
2 s.h.
Introduction to the second principles of elementary language instruction. Prerequisites: 39:106 or equivalent.

32:171 Individual Chinese for Advanced Students
2 s.h.
Individually selected research and translation program for students majoring in Chinese. Designed for fourth-year level. Prerequisites: 39:210 or equivalent.

32:172 Individual Japanese for Advanced Students
2 s.h.
Individually selected research and translation program for students majoring in Japanese. Designed for fourth-year level. Prerequisites: 39:210 or equivalent.

39:170 Individual Seminar for Advanced Students
Individually selected seminar for advanced students. Instructor permission required. 3 s.h.

39:190 M.A. Thesis
Offered fall and spring semesters.

39:200 M.A. Thesis

Astronomy
See "Physics and Astronomy."

Biochemistry

Department Head: Edward C. Heath

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

Biochemistry is the study of the basic chemical processes which occur in all living systems. It is one of the most active branches of science and promises to remain so for a considerable time to come. Biochemists generally work in laboratory and industrial classrooms. Those with the Bachelor’s degree are most often employed as research assistants in laboratory work in a wide variety of situations in industry, government, education, health service, or in secondary school teaching, for which certification is also required.

Biochemists with advanced degrees—usually the doctorate—pursue learning, research, and administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; and in the food, drug, cosmetics, chemical, petroleum, and allied industries as well as in recombinant DNA gene companies.

Bachelor of Science

The Bachelor of Science program in biochemistry prepares the student, upon graduation, to work as a biochemist in certain positions requiring no further formal training. It is also an excellent background for graduate study in biochemistry and related sciences, or professional degree work in the health professions.

In addition to the College of Liberal Arts general requirements, the Bachelor of Science degree in biochemistry requires:

23M:25-26 Calculus I-II 8 s.h.
23M:35-36 Engineering Calculus I-II 8 s.h.
25:1-18 Introduction to Physics I-II 8 s.h.
37:3 Principles of Animal Biology 5 s.h.
2:1 Introduction to Botany 4 s.h.
61:1 General Microbiology 4 s.h.
147:6 Survey of Virology 3 s.h.
72:1-2 Mammalian Physiology 4 s.h.

Other biological areas
4:13 Principles of Chemistry I 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
4:121-122 Organic Chemistry I-II 5 s.h.
4:131 Physical Chemistry I 3 s.h.
4:132 Physical Chemistry II 3 s.h.
95:155 Physical Biochemistry 4 s.h.
5:1 Organic Chemistry Laboratory 3 s.h.
90:100 Seminar: Undergraduate (3 s.h. total required) 0-1 s.h.
99:120 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.
99:130 Experimental Biochemistry 4 s.h.
99:100 Biochemistry of Informational Macromolecules 3 s.h.
99:155 Research, Independent Study at least 6 s.h. (May be taken for honors, Bachelor science electives at least 15 s.h.

Bachelor of Arts

In addition to the College of Liberal Arts general education requirements, the Bachelor of Arts degree in biochemistry requires:

23M:15 Mathematics for the Biological Sciences 4 s.h.
23M:26 Calculus for the Biological Sciences 3 s.h.
25:11-12 College Physics 8 s.h.
37:3 Principles of Animal Biology 5 s.h.
2:1 Introduction to Botany 4 s.h.
61:157 General Microbiology 4 s.h.
147:6 Survey of Virology 3 s.h.
72:1-2 Mammalian Physiology 4 s.h.

Other biological areas
4:13 Principles of Chemistry I 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:15 Principles of Chemistry Lab I 2 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
4:130 Physical Chemistry for the Life Sciences 3 s.h.
90:100 Seminar: Undergraduate 0-1 s.h.
99:120 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.
99:140 Experimental Biochemistry 4 s.h.
99:150 Biochemistry of Informational Macromolecules 3 s.h.
Advanced science electives 9 s.h.

Additionally, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include four semester hours of senior research among their electives.

Biochemistry majors, especially in the B.A. program, must qualify for teacher certification by taking additional courses in teacher education. For details consult with an adviser in the College of Education.

Honors Program

Qualified students may earn an honors degree by doing special work in 99:140 Experimental Biochemistry or more usually in 99:155 Research, Independent Study. The student presents the research results in a report written in the form of a journal article and in an oral report in 99:100 Seminar. Undergraduate, or to a departmental honors committee.

Other Combined Programs

It is possible, especially in the B.A. program, to include courses from other disciplines, such as pre-law, psychology, or journalism, permitting individualization of the curriculum as preparation for one of many interesting variety of vocations in which biochemistry is having an impact. It is also possible for a B.A. student in biochemistry to complete the specified course requirements in three years and still earn 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.

Biotechnology Concentrate: Eugene Speckman
Undergraduate Program

The biology major is jointly administered and taught by the departments of Botany and Zoology.

The basic courses emphasize processes which unite or are common to living systems, at molecular, cellular, organismic, and population levels. Later, through appropriate selection of elective courses, students may follow their own interests by concentrating in such areas as genetics, development, physiology, ecology, molecular biology, or courses which emphasize plant or animal systems.

Students interested primarily in field biology have ample opportunity for this emphasis through the program in ecology and systematics, and through the program's use of the Macbride Field Station.

Also, a variety of courses is offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.

The science requirements are identical for the Bachelor of Arts and Bachelor of Science degrees with a major in biology. They total 34 semester hours, as follows:

- 21 Introduction to Botany 4 s.h.
- 37.3 Principles of Animal Biology 5 s.h.
- 37.128 Fundamental Genetics 3 s.h.
- 37.129 Fundamental Genetics Laboratory 2 s.h.
- 37.129 Fundamental Genetics Laboratory 2 s.h.
- 2.131 Evolution 4 s.h.
- 37.131 Evolution 4 s.h.
- 37.105 Cell Physiology 4 s.h.
- Electives in botany, microbiology, zoology, or geology (12 s.h.)

The twelve elective hours must be in courses numbered 100 or above, excluding 37.125 A Planet in Crisis, 61.164 Microbiology, and similar courses directed primarily at nonscience students; and including no more than three semester hours in botany and zoology honors courses; and 2:153 Special Topics and 2:199 Introduction to Research. Students may substitute up to 4 semester hours of advanced courses in physical sciences (physics, chemistry, or geology; courses numbered 100 or above that carry elementary course prerequisites and are directed at science students) or in mathematics (any course that requires first-semester calculus as a prerequisite). Such substitutions may not include any of the "requirements in other disciplines" listed below.

Requirements for the major in biology also include these courses in other disciplines:
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 4:16 Principles of Chemistry Lab 1 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.
- 29:1-12 College Physics 8 s.h.
- 29:7-18 Introduction Physics III 8 s.h.
- 22M:45 Calculus I 4 s.h.
- 22M:45 Calculus for the Biological Sciences 3 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 8W:10 Expository Writing (or equivalent) 3 s.h.

Biology students planning to apply for admission to The University of Iowa College of Medicine must take a complete course in organic chemistry, with laboratory. This requirement may be fulfilled by taking 4:121 Organic Chemistry I and 4:122 Organic Chemistry II plus 4:141 Organic Chemistry Laboratory or by taking 4:121 and 99:121 The Chemistry of Biological Materials plus 99:140 Experimental Biochemistry. Biology students planning to teach in high schools should consult with advisers in the College of Education concerning psychology, education, and American government courses required for teaching certification.

Minor

A minor in biology is available for students majoring in other subjects. The biology minor requires 15 semester hours of credits in biology, microbiology, physiology, and/or geology (15 credit hours) to be completed at The University of Iowa and including at least 12 semester hours in 100-level courses, excluding those designed primarily for nonscience students. Biology courses taken at other institutions or as a pass-fail basis will not apply toward requirements for the minor in biology.

Honors

The Honors Program in biology gives the superior student membership in a small, active group of undergraduates with common interests and association with one of the departments' research groups. It introduces the student to the pursuits of practicing scientists-experiments, discussions of current research, work on specialized topics, 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 coursework in the departments of Botany and/or Zoology, including at least 2 semester hours in 2:198 Honors Laboratory Research or 2:197 Honors Laboratory Research; at least 2 semester hours in 2:197 Honors Readings in Botany or 2:197 Honors Readings in Zoology; and at least 12 semester hours in 2:198 Honors Seminar in Zoology or a seminar in botany. Students in biology must maintain at least a 3.2 grade-point average overall and at least a 3.2 average in the biological sciences. A final research paper approved by the research supervisor is required.

Graduate Programs

The departments of Botany and Zoology offer Master of Science degree programs in botany and zoology. See "Botany" and "Zoology" in this section of the Catalog.

Botany

Department chair: Jeff T. Schramm
Faculty professor: Robert R. Crudden, Robert M. Muni, Jeff T. Schramm
Associate professors: Nancy R. Caron, Robert W. Erdman, Douglas A. Herzen, Richard S. Spaulding, Wee-Yung Wang
Assistant professor: manu A. Rehner
Assistant professor: Jonathan E. Robert, Darin G. Wilson
Adjunct assistant professor: Kenneth Jensen
Assistant professor: Robert J. Bums, Ph.D., M.S., Ph.D. in botany, assistant professor of botany
Assistant professor: Robert T. Bums, Ph.D., M.S., Ph.D. in botany, assistant professor with the Department of Biology

Botany is a science contributing to our understanding of plants, their significance
in the earth’s biosphere, their structure, function, reproduction, diversity, evolution, ecology, and relation to human affairs. Training of professional botanists for teaching and research positions in colleges, universities, governmental agencies, and industrial firms is available. Students majoring in botany are often preparing to enter careers in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant breeding, microbiology, the chemistry of natural products, ecology, medicine, environmental law, and pharmacy.

**Bachelor of Science**

In addition to the general education requirements of the College of Liberal Arts, students seeking the B.S. degree are required to take:

### Botany Requirements

- 21 Introduction to Botany 4 s.h.
- 2100 Plant Diversity 4 s.h.
- 2131 Plant Anatomy 3 s.h.
- 2120 Fundamental Genetics 3 s.h.
- 2102 Algae and Fungi 4 s.h.
- Plant Physiology 4 s.h.
- 2105 Plant Anatomy 4 s.h.

A Taxonomy Course

- 2131 Biology of the Local Flora 3 s.h.
- 2131 Plant Taxonomy 4 s.h.
- 2131 Field Botany 3 s.h.
- 2105 Plant Taxonomy 5 s.h.

A Physiology Course

- 2109 Plant Physiology 4 s.h.
- 2110 Plant Physiology 4 s.h.
- 2111 Cell and Plant Physiology 3 s.h.
- 3710 Cell Physiology 4 s.h.

An Ecology Course:

- 2111 Physiology 4 s.h.
- 2132 Ecology 4 s.h.
- 2116 Field Ecology 4 s.h.
- Special Topics 2 s.h.

Zoology Requirement

3713 Principles of Animal Biology 5 s.h.

**Chemistry Requirement**

- 413 Principles of Chemistry I 3 s.h.
- 414 Principles of Chemistry II 3 s.h.
- 416 Principles of Physical Chemistry Laboratory I 2 s.h.
- 4121 Organic Chemistry I 3 s.h.
- 4122 Organic Chemistry II or 99120 The Chemistry of Biological Materials 3 s.h.
- 4141 Organic Chemistry Laboratory 2 s.h.
- 99140 Experimental Biochemistry 4 s.h.

**Mathematics Requirement**

22M13 Mathematics for the Biological Sciences 4 s.h.

or 22M20 Elementary Functions 3 s.h.

A Statistics course or 22M102 Introduction to Statistical Methods or equivalent.

**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:

- 21 Introduction to Botany 4 s.h.
- 3713 Principles of Animal Biology 5 s.h.
- 2120 Fundamental Genetics 3 s.h.

A minimum of one course from each of the following five areas (17-20 semester hours):

**Structural Botany**

- 2113 Plant Anatomy 4 s.h.
- Physiology and Cell Biology 4 s.h.
- 2109 Plant Physiology 4 s.h.
- 2114 Cellular Plant Physiology 3 s.h.
- 2129 Plant Biochemistry 3 s.h.
- 3711 Cell Physiology 4 s.h.

**Vascular Plant Diversity**

- 2113 Biology of the Local Flora 3 s.h.
- 2100 Plant Diversity 4 s.h.
- 2101 Plant Taxonomy 4 s.h.
- 2151 Field Botany 2 s.h.
- 2120 Paleobotany 4 s.h.
- 2105 Plant Taxonomy 5 s.h.

**Ecology and Evolution**

- 2111 Plant Ecology 4 s.h.
- 2116 Field Ecology 4 s.h.
- 2131 Evolution 4 s.h.
- 2132 Ecology 4 s.h.

**Biological and Developmental**

- 2102 Algae and Fungi 4 s.h.
- 2102 Physiology 4 s.h.
- 2106 Bryology 4 s.h.
- 2107 Mycology 4 s.h.

One 100-level course in Botany or cognate sciences

**Chemistry**

- 413 Principles of Chemistry I 3 s.h.
- 414 Principles of Chemistry II 3 s.h.
- 415 Principles of Chemistry Laboratory 2 s.h.
- 4121 Organic Chemistry I 3 s.h.
- 4122 Organic Chemistry II or 99120 The Chemistry of Biological Materials 3 s.h.
- 4141 Organic Chemistry Laboratory 2 s.h.
- 99140 Experimental Biochemistry 4 s.h.

**Mathematics**

- 22M15 Mathematics for the Biological Sciences 4 s.h.
- 22M16 Calculus for the Biological Sciences 4 s.h.
- 22M20 Elementary Functions 3 s.h.

22M25 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

**Honors**

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by professional staff members. In addition to the regular requirements for the B.A. degree, honors students must complete 3 semester hours of research during the senior year, maintain the grade-point average required for admission to the program, and pass an honors examination at the end of the senior year.

**Minor**

The botany minor requires 16 semester hours of credit in Botany. At least 12 of these semester hours must be earned in courses at the 100 level or above. None of these courses may be taken pass-fail.

**Biology Program**

Undergraduate and Graduate degree programs in biology are administered jointly by the departments of botany and biology. See "Biology" in this section of the Catalog.

**Graduate Programs**

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

**Master of Science in Botany**

The botany department offers two distinct M.A. degree programs, one with thesis and one without. The M.S. with thesis places greater emphasis on independent research and less on formal course work. It is intended primarily for candidates entering with a strong course background in botany or biology.
Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. It may be earned after conducting original research of sufficient magnitude and value to allow the writing of a thesis and its successful defense before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by the student's guidance committee. Hours earned for the master's degree may be counted toward the 72 hour requirement.

Achieve a grade-point average of 3.0 on all courses—other than Research—completed prior to the time of the final examination.

Pass a written examination during the term in which he or she is to graduate (Individual committee members may, if not to give a written examination in their area.) This is followed within a week by an oral examination. These examinations cover the courses and research experience the student has had up to this point.

Doctor of Science in Biology

The degree program leading to a M.S. in biology is administered jointly by the botany and biology departments. See "Biology" section of the Catalog.

Graduate Admission

University requirements

An application for admission to the Graduate College must be completed and sent to the Director of Admissions, University of Iowa, Iowa City, Iowa 52242. Official transcripts from each undergraduate and graduate institution attended must be submitted with the application form. Scores on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative parts) should be filed with the application. A valid B.S. or B.A. degree from an accredited institution is required.

Departmental requirements

Masters Degree Program:

A cumulative grade-point average of at least 3.0 on all college level work attempted.

A GRE Aptitude Test score (verbal plus quantitative) of 1100 or greater.

Three letters of recommendation.

Provision: The numerical requirements are not absolute. For example, a GRE Aptitude Test score slightly below 1100 may be compensated for by 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.

A master's degree in botany or a dissertation.

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

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

Special provision for foreign students:

Submit a program of study approved by a graduate committee comprising three members of the graduate faculty, one of whom may be from another department. Normally, as a guidance procedure, 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 supportive areas, as prescribed by the guidance committee. Six hours of research (2:225 and 2:226) are required in this program. Additional research hours may be taken, but no more than six may be counted toward the 34 hour degree requirement.

Produce a written and oral comprehensive examination in botany and biology as prescribed by the guidance committee. Hours earned for the master's degree may be counted toward the 72 hour minimum. The guidance committee may also use that coursework beyond the 72 hours to meet specific proficiency requirements (e.g. language, statistics) or to make up for background deficiencies (e.g. chemistry, general botany, course work).

Specific degree requirements are as follows:

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.

Submit 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 2-3 semesters of admission to the Ph.D. program (i.e. post-M.S.). The proposal should outline the specific objectives, significance, and methodology of the chosen research project. This proposal should be a written statement of the work to be performed and written acceptance by members of the guidance committee. Subsequently, copies of the accepted proposal will be distributed by 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 will then be eligible for 1 semester hour credit under 2:22 Seminar: Botany (see also section on botany seminars).

Take a written and oral comprehensive examination when formal course work has been completed or nearly completed.

Submit a doctoral thesis based on original research to the final examination committee for review.

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

Financial Support
New students wishing to apply for assistantships or fellowships may do so by submitting an Application for Graduate Awards form when applying for admission to graduate study. The application forms may be obtained from the Office of Admissions or the Graduate College or the Department Office. Applicants are reviewed by the faculty for teaching assistantships, and by the Graduate College, upon recommendation by the Department faculty, for research assistantships, and fellowships. The kinds and amounts of support for graduate study in botany, as in lower departments, vary from year to year depending on the availability of funds. The types of appointments and support are teaching assistantships and research assistantships (half-time or 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 of work per week, based on 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 come with an M.S. degree. They carry a stipend for 12 months plus waiver of tuition. Appointees render service to the department by teaching up to two hours per week and by helping in the training of research or graduate assistants for two or three years following the award. Fellowship recipients are free of service requirements, permitting a full-time dedication to graduate study. Selection is made by the department for one year at a time. Prior to the appointment to research, the graduate student is required to select a thesis director.

Research Assistantships (RAF). Teaching/research fellowships are awarded to students from other campuses or students from the University of Iowa who have not taken graduate courses at Iowa.

Genetics Research Assistantships are awarded by the Interdepartmental Genetics Program from University funds. All students whose thesis project is primarily concerned with genetics are eligible to apply. Other sources of support

Summer appointments are few and depend upon the amount of the summer research budget. We have awarded as many as four teaching assistantships in recent summer sessions. Summer session stipends are 2/9 of the academic year salary. Awards are made for half-time service or 20 hours of time per week for the 8 week summer session. Selection of teaching assistants for the summer are made by the instructor in charge of the course to be served.

Faculty members with individual grants-in-aid may wish to employ half-time or 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 the availability of these will be made from time to time. Consult the department chairman 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 Chemistry-Botany Building.

Students concerning themselves with research projects requiring the cultivation of plants have access to greenhouse and special culture rooms with controlled environments. A plant physiology laboratory is available, with associated greenhouses.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in growth regulation, photosynthesis, plant biology, biochemistry, chemical systematic, palaeobotany, cyto genetics, embryology, population biology, morphogenesis, and cell biology. There are two transmission electron microscopes in a special laboratory. Students and staff may use the Scanning Electron Microscopy lab in the Bowen Science Building.

An herbarium for research and general study contains more than two hundred thousand specimens. These standard specimens include extensive collections of seed plants and ferns from Iowa and the Midwest, special research specimens from Mexico and Central America, the Conard herbarium of bryophytes, and a growing repository of fossil pteridophyte plants.

Within a few miles of the campus, a forest preserve is available for field trips and experimental projects. A botanical field station at Iowa Lakeside Laboratory (see "Iowa Lakeside Laboratory" in this section of the Index) is located on West Lake Okoboji in northwestern Iowa.

excellent conditions for summer study in field botany, taxonomy, ecology, physiology, photo biology, population biology, and plant taxonomy. Students frequently participate in field expeditions in Mexico, and Central America. Qualified graduate students may use the Weez Computing Center in their research projects.

Courses

Primarily for Undergraduates

211 Introduction to Botany Biology of plant life emphasizing structure, function, reproduction, growth, and morphology. Recommended for students in biology, and for those preparing to teach science.

213 Field and Laboratory study of native plant communities, and flowering plants found in the region. Identification, recognition, and reproductive biology emphasis.

151 Biology of the Local Flora Identification, classification, and evolutionary biology of ferns, gymnosperms, and flowering plants found in the Midwest and northern Minnesota. Field trips in native woodland and prairie communities in Minnesota. Prerequisite: 211 or equivalent.

221 Plant Propagation Study of physiological and seed propagation techniques, cuttings, budding and grafting, vase culture techniques, seed quality, seed dormancy, and seed biology.

223 and 224 Trees Study of woods and forest. Selected species will be studied in detail for their use as forest and farm crops. Shrub Study of woody plants native or introduced, and their use for ornament, food, and fiber. Prerequisites: 211 or equivalent.

421 Plant Taxonomy Laboratory and field analyses of evolutionary changes within species, genera, and families of ferns, angiosperms, and flowering plants emphasizing integration of characters from comparative morphology, cytology and biochemistry. Evolutionary relationships of major plant families. Prerequisite: 211 or equivalent.

422 Advanced Topics in systematics. Survey of angiosperms, lycopsids, gymnosperms, lycophytes, ferns, mosses, and flowering plants with emphasis on morphological and reproductive biology of representatives of major taxonomic groups. Lectures and laboratory experience with living and preserved material. Prerequisite: 421 or equivalent.

251 Introductory Genetics Basic principles of genetics including meiosis, chromosomal, molecular, and population biology.

291 Genetics and Genomics Genetics and Genomics is an introduction to the biology of genetics, genomics, and bioinformatics.

297 Cyanobacteria Structure and function of cyanobacteria, physiology of photosynthesis, metabolism, biochemistry, and molecular biology of cyanobacteria.

299 Physiology Structure and function of microorganisms. Principles of microbial physiology and biochemistry. Prerequisite: 251 or equivalent.

299 Evolutionary Genetics Structure and function of microbial populations. Principles of microbial physiology and biochemistry. Prerequisite: 251 or equivalent.

299 Ecology Principles of microbial physiology and biochemistry. Prerequisite: 251 or equivalent.

299 Marine Biology Lectures, laboratory, and fieldwork dealing with the biology and ecology of marine organisms. Prerequisite: 251 or equivalent.

299 Mycology Morphology, taxonomy, and physiology of fungi with

20 1-2 Elementary Latin or 8 s.h. 
20 15 Latin Review 4 s.h. 
20 16-17 Intermediate Latin I-II 6 s.h. 
20 81 Age of Cicero 3 s.h. 
20 82 Age of Augustus 3 s.h. 
20 171 Elementary Latin Composition 3 s.h. 
Two Latin, History courses, 150 level or above 6 s.h.

Major in Classics (Greek and Latin)
The B.A. degree with a major in classics requires a minimum of 36 semester hours of major credit, of which 30 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:

14 1-2 Elementary Greek 8 s.h. 
14 1-2 Second-Year Greek 6 s.h. 
20 1-2 Elementary Latin 8 s.h. 
20 16-17 Intermediate Latin I-II 6 s.h. 
14 121-122 Homer and Hesiod I-II 6 s.h. 
20 81 Age of Cicero 3 s.h. 
20 82 Age of Augustus 3 s.h. 
14 171 Elementary Greek Composition 3 s.h. 
20 171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization
This major is approved by the School of Art and Art History and the departments of Classics, History, and Religion. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses currently offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it could be used as a very good basis for preparation of 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 (other "Classics in English" courses, or Latin or Greek language courses) 6 s.h. 
Appropriate courses in art, history, philosophy, religion, or linguistics 3 s.h. 
14 193 Year in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who attained 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 three semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature chosen 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 longer paper which is examined by at least three members of the department.

Language for Nonmajors
Students wishing to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14 1-2 Elementary Greek and 14 11-12 Second-Year Greek. Students who wish to meet the requirement by studying Latin may elect 20 1-2 Elementary Latin or 20 15 Latin Review, and 20 16-17 Intermediate Latin I-II.

Graduate Program
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 include in their programs no more than six semester hours of courses numbered 101-189.

Master of Arts
This department offers the M.A. degree in Latin, Greek, or classics. The candidate must earn a minimum of 36 semester hours of major credit in courses numbered 101 and above. Normally, students in the Latin program who have had no Greek are also expected to pass the oral exam in Greek that constitutes part of their program.

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 composition (3 s.h.) or equivalent.
Advanced Latin composition (3 s.h.) or equivalent.
Any two of the following three courses: a. A 3 s.h. course in Indo-European philology—3 s.h. b. A 3 s.h. course in Greek paleography—3 s.h. c. Any graduate-level art course—3 s.h.
A total of 42 semester hours of specified courses is thus required. The minimum graduate college requirement is 72 semester hours; the difference of 30 semester hours is to be made up from regular department offerings.

Required Ph.D. Examinations
A. Pre-Comprehensive
French Competency
German Competency
Latin Sign (3 s.h.)
Greek Sight (3 s.h.)
One sight exam must be attempted by the end of the first year of graduate study.
B. Ph.D. Comprehensive (A 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 on Written examination—1 hour
Dissertation
Special Facilities
Extensive collections of classical texts and periodicals in the University library and the art 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 faience pieces in bronze from Mycenae, Pompeii, and Herculaneum.
The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making its facilities available to its faculty and graduates.

Courses
Greek
For Undergraduates Only
141 Elementary Greek Fundamentals of Attic Greek and basic concepts of Greek civilization 4 s.h.
142 Elementary Greek Selections from Greek authors. Continuation of 141, which is prerequisite. 4 s.h.
146 New Testament Greek Reading knowledge of New Testament Greek; previous knowledge of Greek is not expected, exegesis is taught with emphasis on foreign-language Oriental summer sessions.

20 1-2 Elementary Latin or 8 s.h. 
20 15 Latin Review 4 s.h. 
20 16-17 Intermediate Latin I-II 6 s.h. 
20 81 Age of Cicero 3 s.h. 
20 82 Age of Augustus 3 s.h. 
20 171 Elementary Latin Composition 3 s.h. 
Two Latin, History courses, 150 level or above 6 s.h.

Major in Classics (Greek and Latin)
The B.A. degree with a major in classics requires a minimum of 36 semester hours of major credit, of which 30 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:

14 1-2 Elementary Greek 8 s.h. 
14 1-2 Second-Year Greek 6 s.h. 
20 1-2 Elementary Latin 8 s.h. 
20 16-17 Intermediate Latin I-II 6 s.h. 
14 121-122 Homer and Hesiod I-II 6 s.h. 
20 81 Age of Cicero 3 s.h. 
20 82 Age of Augustus 3 s.h. 
14 171 Elementary Greek Composition 3 s.h. 
or 20 171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization
This major is approved by the School of Art and Art History and the departments of Classics, History, and Religion. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses currently offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it could be used as a very good basis for preparation of 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 (other "Classics in English" courses, or Latin or Greek language courses) 6 s.h. 
Appropriate courses in art, history, philosophy, religion, or linguistics 3 s.h. 
14 193 Year in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who attained 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 three semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature chosen 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 longer paper which is examined by at least three members of the department.

Language for Nonmajors
Students wishing to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14 1-2 Elementary Greek and 14 11-12 Second-Year Greek. Students who wish to meet the requirement by studying Latin may elect 20 1-2 Elementary Latin or 20 15 Latin Review, and 20 16-17 Intermediate Latin I-II.

Graduate Program
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 include in their programs no more than six semester hours of courses numbered 101-189.

Master of Arts
This department offers the M.A. degree in Latin, Greek, or classics. The candidate must earn a minimum of 36 semester hours of major credit in courses numbered 101 and above. Normally, students in the Latin program who have had no Greek are also expected to pass the oral exam in Greek that constitutes part of their program.

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 composition (3 s.h.) or equivalent.
Advanced Latin composition (3 s.h.) or equivalent.
Any two of the following three courses: a. A 3 s.h. course in Indo-European philology—3 s.h. 
b. A 3 s.h. course in Greek paleography—3 s.h. 
c. Any graduate-level art course—3 s.h.
A total of 42 semester hours of specified courses is thus required. The minimum graduate college requirement is 72 semester hours; the difference of 30 semester hours is to be made up from regular department offerings.

Required Ph.D. Examinations
A. Pre-Comprehensive
French Competency
German Competency
Latin Sign (3 s.h.)
Greek Sight (3 s.h.)
One sight exam must be attempted by the end of the first year of graduate study.
B. Ph.D. Comprehensive (A 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 on Written examination—1 hour
Dissertation
Special Facilities
Extensive collections of classical texts and periodicals in the University library and the art 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 faience pieces in bronze from Mycenae, Pompeii, and Herculaneum.
The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making its facilities available to its faculty and graduates.

Courses
Greek
For Undergraduates Only
141 Elementary Greek Fundamentals of Attic Greek and basic concepts of Greek civilization 4 s.h.
142 Elementary Greek Selections from Greek authors. Continuation of 141, which is prerequisite. 4 s.h.
146 New Testament Greek Reading knowledge of New Testament Greek; previous knowledge of Greek is not expected, exegesis is taught with emphasis on foreign-language Oriental summer sessions.
Communication and Theatre Arts

1411 I Classical Greek Art
Combination of 1412 and 1413. Same as 111-127.
3 hr.

1412 Classical Greek Art
Lecture on classical mythology and legends; its comparative aspects; neoclassical mythologies; history of art. Same as 111-127.
3 hr.

1413 Greek and Roman Architectural Art
Same as 111-128, 221-128.
3 hr.

1414 Greek and Roman Art
Survey of Greek and Roman pottery from prehistoric to Hellenistic times. Same as 111-128.
3 hr.

1415 Middle Latin Architectural Art
Same as 111-137.
3 hr.

1417 Medieval Art
Same as 111-139.
3 hr.

1516 Senior in Ancient Civilizations
Suggested major changes annually; required of majors in recent civilizations during senior year.
3 hr.

1517 Greek and Latin in Vocabulary Building
Emphasizes memorization of words and Latin stems, prefixes, and suffixes. Analysis of word roots, prefixes, and suffixes is stressed. Emphasis is placed on offering the student more questions and participation. Same as 110.
3 hr.

1523 Medieval and Technical Terminology
Emphasis is placed on the study of technical terminology in the Gothic and Romanesque periods of art. Students will be able to identify and outline the importance of the field of art history. Same as 110.
3 hr.

1518 Early Roman Art
Roman architecture, sculpture, painting, and mosaic of the imperial era, and late antique periods. Same as 111-120.
3 hr.

1519 Roman Art
Same as 111-130.
3 hr.

1512 Roman Mosaics
Same as 110.
3 hr.

1513 Religion and Decor in Antiquity
Investigation of the roles of religion in the Roman and Greek art periods. Students will be able to identify the religious motifs and their significance in these periods. Same as 110.
3 hr.

1520 Ancient World
Introduction to the study of the ancient world. Students will be able to identify and outline the major cultural and political events that shaped the world we know today. Same as 110.
3 hr.

1514 Ancient World
Introduction to the study of the ancient world. Students will be able to identify and outline the major cultural and political events that shaped the world we know today. Same as 110.
3 hr.

1521 The Gothic Art of the City State
Traces the political, social, and economic forces of the Roman Empire on the art of the Middle Ages and of the influence of the Middle Ages on the art of our time. Same as 110.
3 hr.

2519 Comparative Romanesque Linguistics
Same as 235, 236, 236S. 3 hr.

Communication and Theatre Arts

Department chair: John W. Bowers
Faculty, graduate: Joseph DeFrance, Samuel L. Perlman, John W. Bowers, Crista Casares, Lavinia Guff, Bruce E. Grondahl, Robert Holley, Richard D. Hunsaker, Franklin Miller, Steven S. Ovanes, Susan Schack, David Thayer

Instructor Kevin Gardland
adjunct faculty: James Waterhouse

The Department of Communication and Theatre Arts is concerned with communication and Theatre Arts through the study of personal expression and development, with communication as the major means by which people adjust themselves to their society and their society to themselves, with communication as the essential process for the operation of any society, especially the highly technological society, and with artistic as well as functional communication. These concerns with communication are manifested in two ways: faculty attempts and attempts of the department's students to further understand communication processes, and to improve abilities to communicate effectively.

The department has six major divisions, whose emphases and distinctive courses are described below under the headings "Communication," "Communication Education," "Theatre Arts," "Rhetorical Studies," "Communication Research," and "Broadcasting and Film.

General Departmental Degree Requirements

Bachelor of Arts

Regardless of area specialization, a student seeking a Bachelor of Arts degree in the department must earn:

- A minimum of 24 semester hours in the department, including at least two courses outside the division of concentration.

Acceptance to the University's program in Communication, theatre arts, communication education, and broadcasting and film.

The department has six major divisions, whose emphases and distinctive courses are described below under the headings "Communication," "Communication Education," "Theatre Arts," "Rhetorical Studies," "Communication Research," and "Broadcasting and Film.

Master of Arts

A student can earn a general M.A. degree in the department or a more specialized degree either in one of the divisions or in some combination of divisions.

Departmental requirements for the Master of Arts degree are:

- A minimum of 30 semester hours, including 36,300 Introduction to Research or its equivalent.

A research thesis or the nonthesis degree, a graduate seminar 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 February 1st preceding, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Master of Fine Arts in Dramatic Art

See "Theatre Arts" section.

Educational Specialist (for Jursur Crayon Teaching)

Departmental requirements for an Educational Specialist degree are:

A minimum of 80 semester hours, including 36,300 Introduction to Research or its equivalent, an approved seminar, and at least 19 semester hours completed in the College of Education's graduate program in higher education.

Successful completion of a research report.

A semesters' membership in an assigned teaching position;

Satisfactory performance on a nine-hour written examination covering areas of learning agreed upon by the student and the college graduate committee;

Successful completion of such requirements in each of the above areas as specified by the departmental division in which the student's work is concentrated.

Doctor of Philosophy

Departmental requirements for a Doctor of Philosophy degree are:

A minimum of 72 semester hours of graduate credit, exclusive of research tools and dissertation.

A minimum of ten semester hours of dissertation credit.

36,300 Introduction to Research or its equivalent, including at least two courses in theory taken within the department, and others as determined by the student's advisor and graduate committee, in consultation with the student;

Successful completion of a qualifying examination and demonstrated competence in the student's major research areas;

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

The application deadline for the fall semester or summer session is February 1st preceding, for maximum probability of admission. Admission decisions are made.
Evaluation, testing and grading, textbook selection and adoption, reading lists of authors, and coordination of contemporary communication education theory and practice. It is convened and chaired by 31018 Courses in Communication Education 2-4 h.

240-018 Current Issues, Approaches, and Methods of Communication 2-4 h.

Development of new approaches and methodologies for teaching communication, public relations, and mass media. 31019 Development of Communication Education 2-4 h.

The courses are designed for graduate students who have completed advanced level courses in communication and related fields. The program is designed to provide a comprehensive understanding of communication theory and practice, with an emphasis on the development of skills in communication education. The program offers a variety of courses that address different aspects of communication education, including courses in communication theory, research methods, and educational technology. The program is offered online, allowing students to complete the program from anywhere in the world. The program is designed to prepare students for careers in communication education, including teaching, research, and administration roles. Upon completion of the program, students will have demonstrated the ability to apply communication theory and practice in effective teaching, research, and administration. The program is offered by the College of Communication at the University of Illinois at Urbana-Champaign.
Courses

301A Principles of Social Communication 2 s.h.
Society's speech portion of College of Liberal Arts general major requirement. Placed upon matriculation of students who have had or are taking 101-102-103-104, 201-203, or their equivalent.

303A Communicating in Public 2 s.h.
An intermediate course in public speaking, preparing students for professional or advanced courses. Students interested in the role of public communication in society and the professions. 703A

311 Speech Communication 2 s.h.
Introduction to the field of public speaking involving study of the principles of speaking and hearing, the interpretation of the role of public communication in society and the professions.

311A Speech Communication 2 s.h.
Introduction to the principles of public speaking, including study of straddling and evaluating social interaction between people, and discovering the uses of these skills to enable people to evaluate and understand situations.

317A Rhetoric in Debate 2 s.h.
Studies in the theory of rhetoric in debate.

318C Communication and Public Affairs 2 s.h.
Principles and techniques of public communication in business, education, and other professions; theory and guided practice.

318B Business and Professional Speaking 2 s.h.
Principles and techniques of public communication in business, education, and other professions; theory and guided practice.

321A Socially Relevant Speech 2 s.h.
Intended for those with an interest in debate and debate problems, and those who may reach a debate unit or division in an interdisciplinary debate program.

325A Public Communicating 2 s.h.
Principles and practical explorations of persuasive public communication, particularly persuasive speaking; immediate and extended public speaking.

360A Theory and Practice of Argument 2 s.h.
A course in argument as presented in law, social science, politics, and public policy. Analysis of argumentative situations and role of argument, represented by logic, legal, and political arguments. Foundations of persuasive arguments, business personalities, and other argumentative structures. A basis for the General Education requirement in rhetoric.

429A Rhetorical Analysis 2 s.h.
Principles and techniques of interpreting in business, education, or other professions; theory and guided practice.

426A Rhetorical Analysis 2 s.h.
Principles and techniques of interpreting in business, education, or other professions; theory and guided practice.

429A Institutional Leadership 2 s.h.
Principles and techniques of interpreting in business, education, or other professions; theory and guided practice.

429A Communication Theory in Everyday Life 2 s.h.
Surveys major theories of interpreting in everyday life. For a further discussion of this course, see course number 2106.

429A Speech Communication 2 s.h.
Introduction to the role of the public speaker in today's society. Low-level introductory course in public speaking, dealing with topics of current concern.

529A Sensory and Policy 2 s.h.
An analysis of the historic and political effectiveness of public opinion at the state, local, and national levels.

530A Communication Research 0 s.h.
Research topics in the field of communication methods. Graded subject to final.

530A Communication Research 0 s.h.
Survey of individual and group research methods. Consideration of the role of public communication in society and the professions.

530A Communicating in Public 0 s.h.
An intermediate course in public speaking, preparing students for professional or advanced courses. Students interested in the role of public communication in society and the professions.

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the doctorate. Efforts are made to tailor individual programs of study to students' needs and interests, and to meet the requirements for the M.A. in rhetorical studies include:

360:100 Introduction to Research
At least 15 semester hours of courses in rhetorical studies, including a seminar:
At least six semester hours of courses in other divisions of this or related departments; and
A comprehensive examination across three areas of study determined by students and their committees.

**Doctor of Philosophy**

The program leading to the doctorate in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives encompassed in this division and to develop research competence essential to a life of productive scholarship.

Work in related departments—often, in political science, history, sociology, English, comparative literature, American studies, philosophy, and journalism—complements rhetorical studies course offerings. Many doctoral students also do extensive work in "Communication Research" and "Broadcasting and Film" to improve their range of leading opportunities and their research skills. For more information, see the initial sections of this chapter's description. Teaching and research assistantships are available, evaluation of these applications begins about February 15 each year.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>360.200</td>
<td>Rhetorical Criticism</td>
<td>3.0</td>
</tr>
<tr>
<td>360.300</td>
<td>Rhetorical Analysis of Communicative Acts, Acts, and Events: Introduction to the Arts of American Criticism and Western Literature</td>
<td>3.0</td>
</tr>
<tr>
<td>360.400</td>
<td>Greek and Roman Public Address</td>
<td>3.0</td>
</tr>
<tr>
<td>360.500</td>
<td>Historical and Critical Study of Public and Written Communication from the 19th Century to the Present Century</td>
<td>3.0</td>
</tr>
<tr>
<td>360.600</td>
<td>American Public Address</td>
<td>3.0</td>
</tr>
<tr>
<td>360.700</td>
<td>Rhetorical Analysis of Metaphors in Law, Public uiarticulations, Permanence, and Propaganda in the Media</td>
<td>3.0</td>
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<tr>
<td>360.800</td>
<td>British Public Address</td>
<td>3.0</td>
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<tr>
<td>360.900</td>
<td>Rhetorical Analysis of Civic Communication, Occasioned on the socialization of the civic spirit in American history and in the 19th century</td>
<td>3.0</td>
</tr>
<tr>
<td>360.100</td>
<td>Social Rhetoric</td>
<td>3.0</td>
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<tr>
<td>360.110</td>
<td>Theories and Philosophies of Discourse in the Ancient World</td>
<td>3.0</td>
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<tr>
<td>360.120</td>
<td>Rhetorical Language Theory</td>
<td>3.0</td>
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<tr>
<td>360.130</td>
<td>Contemporary Argumentation: Theory and Practice</td>
<td>3.0</td>
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<tr>
<td>360.140</td>
<td>Contemporary Argumentative Discourse and Social Action</td>
<td>3.0</td>
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<tr>
<td>360.150</td>
<td>Rhetoric and Social Theory</td>
<td>3.0</td>
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<tr>
<td>360.160</td>
<td>Rhetoric and Argument Theory</td>
<td>3.0</td>
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<tr>
<td>360.180</td>
<td>Rhetorical and Political Communication</td>
<td>3.0</td>
</tr>
<tr>
<td>360.190</td>
<td>Analytical and Ethical Examination of Political and Communication Theories, and Their Applications in the Study of Political Communication</td>
<td>3.0</td>
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<tr>
<td>360.200</td>
<td>Seminar: History and Public Discourse</td>
<td>3.0</td>
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<tr>
<td>360.210</td>
<td>Selected Readings in Rhetoric and Communication</td>
<td>3.0</td>
</tr>
<tr>
<td>360.220</td>
<td>Seminar: Communication, Culture, and the Popular Arts</td>
<td>3.0</td>
</tr>
<tr>
<td>360.230</td>
<td>Communication of Images in Visual Culture: Patterns and the Visual Arts of Any Given Epoch</td>
<td>3.0</td>
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<tr>
<td>360.240</td>
<td>Semiotics: A New Semiotic Analysis</td>
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<tr>
<td>360.250</td>
<td>Semiotics: A New Semiotic Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>360.260</td>
<td>Seminar: Modern and Contemporary Theories of Communication</td>
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<tr>
<td>360.270</td>
<td>Seminar: Contemporary Rhetorical Theory</td>
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<tr>
<td>360.280</td>
<td>Seminar: Contemporary Rhetorical Theory</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Broadcasting and Film**

*Professors of record:* Dudley Andrew, Franklin Miller, Seymour B. Block

**Bachelor of Arts**

This program is intended for students interested in the electronic media or film as a focus of a general liberal arts education. The program assumes that students pursuing a career in these areas must not only acquire technical expertise but also develop that expertise in an understanding of the media and their place in society. Conversations. It assumes that no one can understand the history, theory, and culture of the media totally apart from the experience and knowledge of production.

Students emphasizing production will learn how to write, plan, shoot, record, edit, and present film, radio, or television programs. In addition, they will obtain a background in the history of the mass media so that they understand the issues for the industry as a whole. An grounding in media theory and criticism with teach the student to differentiate between good and mediocre production, to appreciate what goes into creating a successful work, and to understand the impact that creative and business decisions may have on audience members and on the society at large.

For non-production students, theories of aesthetics, ideology, and communication will be covered, as well as an introduction to the production process and the policies of the Professional Alliance of Cinema Theatres in the United States.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
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<tbody>
<tr>
<td>360.200</td>
<td>Mass Media and Mass Society</td>
<td>3.0</td>
</tr>
<tr>
<td>360.210</td>
<td>Introduction to Broadcasting and Film Production</td>
<td>3.0</td>
</tr>
<tr>
<td>360.220</td>
<td>Principles of Film Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>360.230</td>
<td>The New Media Age</td>
<td>3.0</td>
</tr>
<tr>
<td>360.240</td>
<td>The American Experience</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Graduate Programs**

Three programs lead to the Master of Arts Degree: Broadcast Studies Film Studies, and Production. Broadcast Studies Film Studies candidates emphasize critical, theoretical, historical, and policy issues during their course of study. Production candidates develop significant knowledge within these scholarly areas in addition to their artistic work. The Ph.D. programs in both broadcasting and film are individually tailored to the candidate's work and an advisory committee to develop comprehensive research.
Theatre Arts

Bachelor of Arts

Undergraduate Program in Theatre Arts

The major in theatre arts provides a liberal arts education and preparation for professional or educational work in the theatre. The Bachelor of Arts degree provides a strong background in theatre arts and dramatic literature with requirements and electives in the major area. Students specializing in special areas of interest may design special programs in acting, directing, playwriting, and theatre history. The program provides ample opportunity for performance experience and workshop activities. Students specializing in special areas of interest may design special emphases programs in acting, design, directing, or theatre history and criticism.

Advising

Initial advising for theatre arts undergraduates is handled by the undergraduate program chair. After a student has declared an area of interest, the undergraduate program chair will assign that student a faculty advisor in that area. Although an advisor is necessary for enrollment, no student is required to accept any advisor, and may request a change at any time by consulting with the professor in charge of advising. Faculty advisors also have the right to accept or refuse students.

Pre-enrollment in many theatre arts courses requires special permission signatures. These are obtained from the theatre arts office, room N-2, E. C. Mayo Theatre or the relevant faculty.

Auditions

Audition for departmental productions usually takes place the first and second weeks of enrolment. Audition materials and information may be picked up at the theatre arts office, room N-2, E. C. Mayo Theatre at least two weeks in advance of registration.

Degree Requirements

The following courses comprise the basic experience for all undergraduate theatre majors. These students who can demonstrate readiness/proficiency for higher level work may seek permission for advanced standing by notifying their advisor of their desire or do so. The responsibility of faculty in each interest area to set their own criteria of evaluation, and define the student's qualification for advanced standing. Students wishing to be considered for special emphasis programs must seek the guidance of the undergraduate program chair.

Transfer Students

Students transferring to The University of Iowa from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements before they may undertake advanced level electives or seek admission to a special emphasis program.

Minimum Requirements (required of all theatre arts majors)

36T: 1 Art of the Theatre 3 s.h.
36T: 11 Theatre History II 3 s.h.
36T: 22 Acting I 3 s.h.
36T: 40 Steigerforth Pracitcum 3 s.h.
36T: 41 Costume Pracitcum 3 s.h.
36T: 80 Playpout Analysis 3 s.h.
36T: 90 Freshman Production 3 s.h.
36T: 91 Production 3 s.h.
36T: 95 Senior Seminar 1 s.h.

Special Emphasis Program Requirements:

Acting emphasis:

36T: 22 Acting I 3 s.h.
36T: 23 Acting II 3 s.h.
36T: 24 Acting IV 3 s.h.
36T: 126 Voice for the Actor 3 s.h.
36T: 186 Movement for the Actor 3 s.h.

One course from the following: 3 s.h.

Any additional Dramatic Literature course

36T: 114 Contemporary Theatre 3 s.h.
36T: 178 American Theatre History 3 s.h.
36T: 113 Decades of the 20th Century 3 s.h.

36T: 145 Stage Makeup Design Emphasis:

36T: 45 Elements of Design 3 s.h.
36T: 46 Scene Design I 3 s.h.
36T: 47 Costume Design I 3 s.h.
36T: 46 Lighting Design I 3 s.h.
36T: 114 Historic Styles II 3 s.h.
36T: 115 Advanced Costume Design 3 s.h.
36T: 119 Advanced Lighting Design 3 s.h.
36T: 115 Historic Styles I 3 s.h.
36T: 142 Drawing for Theatrical Design 3 s.h.
36T: 150 Machine Shop Practice 3 s.h.
36T: 135 Properties and Special Effects 3 s.h.
36T: 153 Costume Crafts: Drafting and Draping 3 s.h.
36T: 153 Costume Crafts: Fabric 3 s.h.
36T: 154 Costume Crafts: Costumes and Pedding 3 s.h.
36T: 154 Costume Crafts: Accessorise 3 s.h.
36T: 158 Electrical Control in the Theatre 3 s.h.

Directing Emphasis:

36T: 70 Directing I 3 s.h.
36T: 71 Directing II 3 s.h.
36T: 43 Elements of Design 3 s.h.
36T: 22 Acting I 3 s.h.
36T: 114 Contemporary Theatre 3 s.h.
36T: 192 Backgrounds of Modern Theatre Practice 3 s.h.
36T: 113 Survey of Drama 3 s.h.

Any Dramatic Literature course

Master of Arts

The M.A. program is designed for students who anticipate teaching at the high school and junior college levels, and for those who wish to earn an advanced degree before proceeding to the doctorate. The program consists of a combination of preparatory and elective courses covering the general areas of dramatic literature, criticism, theory, history, and production. A thesis or graduate seminar in history, theory or criticism of drama or theatre is required.

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, costume direction, production stage management, or arts management, may apply for admission to the program of study and y-valuation leading to the M.F.A. Admission is based upon an interview, audition, and a portfolio of relevant...
Courses For Undergraduates and Graduates

197213 Archaeology I: Ancient Egypt 3 a.  u.
197223 Archaeology II: The Ancient Near East 3 a.  u.
197233 Archaeology III: The Ancient World 3 a.  u.
197243 Archaeology IV: The Roman World 3 a.  u.
197253 Archaeology V: The Medieval World 3 a.  u.
197263 Archaeology VI: The Modern World 3 a.  u.
197273 Archaeology VII: The Prehistoric World 3 a.  u.
197283 Archaeology VIII: The Post-1945 World 3 a.  u.

197214 Introduction to African Studies 3 a.  u.
197224 Introduction to Asian Studies 3 a.  u.
197234 Introduction to Latin American Studies 3 a.  u.
197244 Introduction to Middle Eastern Studies 3 a.  u.
197254 Introduction to South Asian Studies 3 a.  u.
197264 Introduction to Southeast Asian Studies 3 a.  u.
197274 Introduction to Soviet and East European Studies 3 a.  u.

197215 Modern Language I: Spanish 3 a.  u.
197225 Modern Language II: Portuguese 3 a.  u.
197235 Modern Language III: Italian 3 a.  u.
197245 Modern Language IV: French 3 a.  u.
197255 Modern Language V: German 3 a.  u.
197265 Modern Language VI: Russian 3 a.  u.
197285 Modern Language VIII: Chinese 3 a.  u.

197216 Introduction to American Studies 3 a.  u.
197226 Introduction to Comparative Literature 3 a.  u.
197236 Introduction to Women's Studies 3 a.  u.
197246 Introduction to Ethnic Studies 3 a.  u.
197256 Introduction to Gender Studies 3 a.  u.
197266 Introduction to Queer Studies 3 a.  u.
197276 Introduction to Critical Theory 3 a.  u.
197286 Introduction to Postcolonial Studies 3 a.  u.

197217 Introduction to Art History 3 a.  u.
197227 Introduction to Architecture 3 a.  u.
197237 Introduction to Film Studies 3 a.  u.
197247 Introduction to Theater and Performance Studies 3 a.  u.
197257 Introduction to Dance Studies 3 a.  u.
197267 Introduction to Music Studies 3 a.  u.
197277 Introduction to Media Studies 3 a.  u.
197287 Introduction to Digital Humanities 3 a.  u.

197218 Introduction to Gender and Sexuality Studies 3 a.  u.
197228 Introduction to LGBTQ Studies 3 a.  u.
197238 Introduction to Jewish Studies 3 a.  u.
197248 Introduction to African American Studies 3 a.  u.
197258 Introduction to Asian American Studies 3 a.  u.
197268 Introduction to Latinx Studies 3 a.  u.
197278 Introduction to Native American Studies 3 a.  u.
197288 Introduction to Indigenous Studies 3 a.  u.

197219 Introduction to Interdisciplinary Studies 3 a.  u.
197229 Introduction to Global Studies 3 a.  u.
197239 Introduction to Environmental Studies 3 a.  u.
197249 Introduction to Public Policy 3 a.  u.
197259 Introduction to Public Health 3 a.  u.
197269 Introduction to Social Work 3 a.  u.
197279 Introduction to Social Justice 3 a.  u.
197289 Introduction to Human Rights 3 a.  u.

197210 Introduction to Political Science 3 a.  u.
197220 Introduction to International Relations 3 a.  u.
197230 Introduction to Economics 3 a.  u.
197240 Introduction to Sociology 3 a.  u.
197250 Introduction to Anthropology 3 a.  u.
197260 Introduction to Psychology 3 a.  u.
197270 Introduction to History 3 a.  u.
197280 Introduction to Philosophy 3 a.  u.

197211 Introduction to Psychology I: General Psychology 3 a.  u.
197221 Introduction to Psychology II: Developmental Psychology 3 a.  u.
197231 Introduction to Psychology III: Social Psychology 3 a.  u.
197241 Introduction to Psychology IV: Personality and Social Perception 3 a.  u.
197251 Introduction to Psychology V: Abnormal Psychology 3 a.  u.
197261 Introduction to Psychology VI: Cognitive Psychology 3 a.  u.
197271 Introduction to Psychology VII: Neuropsychology 3 a.  u.
197281 Introduction to Psychology VIII: Biological Psychology 3 a.  u.

197212 Introduction to Economics I: Microeconomics 3 a.  u.
197222 Introduction to Economics II: Macroeconomics 3 a.  u.
197232 Introduction to Economics III: International Economics 3 a.  u.
197242 Introduction to Economics IV: Labor Economics 3 a.  u.
197252 Introduction to Economics V: Environmental Economics 3 a.  u.
197262 Introduction to Economics VI: Urban Economics 3 a.  u.
197282 Introduction to Economics VIII: Development Economics 3 a.  u.

197213 Introduction to Sociology I: Introduction to Sociology 3 a.  u.
197223 Introduction to Sociology II: Social Structure and Social Change 3 a.  u.
197233 Introduction to Sociology III: Social Problems 3 a.  u.
197243 Introduction to Sociology IV: Social Theory 3 a.  u.
197253 Introduction to Sociology V: Social Movements 3 a.  u.
197263 Introduction to Sociology VI: Social Psychology 3 a.  u.
197273 Introduction to Sociology VII: Social Inequality 3 a.  u.
197283 Introduction to Sociology VIII: Global Sociology 3 a.  u.

197214 Introduction to Anthropology I: Introduction to Anthropology 3 a.  u.
197224 Introduction to Anthropology II: Biological Anthropology 3 a.  u.
197234 Introduction to Anthropology III: Cultural Anthropology 3 a.  u.
197244 Introduction to Anthropology IV: Archaeology 3 a.  u.
197254 Introduction to Anthropology V: Linguistics 3 a.  u.
197264 Introduction to Anthropology VI: Archaeological Science 3 a.  u.
197274 Introduction to Anthropology VII: Ethnography 3 a.  u.
197284 Introduction to Anthropology VIII: Social Anthropology 3 a.  u.

197215 Introduction to Political Science I: Introduction to Political Science 3 a.  u.
197225 Introduction to Political Science II: Political Institutions 3 a.  u.
197235 Introduction to Political Science III: Political Behavior 3 a.  u.
197245 Introduction to Political Science IV: International Relations 3 a.  u.
197255 Introduction to Political Science V: Comparative Politics 3 a.  u.
197265 Introduction to Political Science VI: Political Theory 3 a.  u.
197275 Introduction to Political Science VII: Public Policy 3 a.  u.
197285 Introduction to Political Science VIII: Public Administration 3 a.  u.

197216 Introduction to History I: Introduction to History 3 a.  u.
197226 Introduction to History II: Ancient History 3 a.  u.
197236 Introduction to History III: Medieval History 3 a.  u.
197246 Introduction to History IV: Early Modern History 3 a.  u.
197256 Introduction to History V: Modern History 3 a.  u.
197266 Introduction to History VI: Contemporary History 3 a.  u.
197276 Introduction to History VII: Global History 3 a.  u.
197286 Introduction to History VIII: Environmental History 3 a.  u.
367.193 Life Drawing 3 h.

367.146 Honors Styles 1 h.
Study of architecture, costume, and late domestic and industrial art of select periods to twentieth-century methods of research and analysis for stage design.

367.144 History of Design 2 h.
Continuation of 367.143.

367.142 Drawing for Theatrical Design 3 h.
Practice in representing architectural and scenic forms for design on scenic, costume, and lighting stages. Pre-requisite or concurrent 367.143.

367.148 Rendering 3 h.
Explanation of presentation techniques for scenic, costume, and lighting design. Pre-requisite or concurrent 367.143.

367.146 Scene Painting 3 h.
Lectures on scene painting materials, 'dry' methods, and techniques of applying paint to scenic panels. Exercise at paint frame. Pre-requisite or concurrent 367.143.

367.145 Stage Makeup 1 h.
Application and design of stage makeup.

367.146 Drafting 1 h.
Tools and conventions of theatrical drafting for design and technical work.

367.147 Technical Production 1 h.
Project organization and technical construction and rigging techniques. Pre-requisite 367.143.

367.148 Technical Production 2 h.
Non-technical introduction to stage mechanics, including strength of materials and design of wood and steel structures. Pre-requisite 367.147.

367.149 In-School Construction 1 h.
Mechanics of motion control to scenery, stage machinery, and special rigging problems. Pre-requisite 367.148.

367.143 Machine Shop Practice 1 h.
Industrial craft techniques including welding, precision drill press operation, stainless metal fabrication, and related areas. Pre-requisite 367.142.

367.144 Machine Shop Practice 2 h.
Construction and testing of theatrical properties, development and control of special effects. Pre-requisite 367.143.

367.145 Cleaning and Staging 1 h.
Modern and historical pattern design and drafting, analysis and selection of lighting, acoustics, and development of patterns from theatrical design. Pre-requisite 367.144.

367.151 Costume Craft Fabric 3 h.
Patterns, design, planning, pricing, and selling of fabric for theatrical costumes. Pre-requisite 367.145.

367.151 Costume Craft Fabric 2 h.
Lectures and discussions of materials and techniques for theatrical costumes. Pre-requisite 367.151.

367.151 Costume Craft Fabric 1 h.
Costume craft and costume properties, history, armor, headdress, and related topics. Pre-requisite 367.151.

367.145 Electrical Control in the Theatre 1 h.
Analysis of systems for control of sound, lights and motion in the Theatre. Pre-requisite 367.140.

367.146 Advanced Scene Design 1 h.
Analysis of some recent theatre research, and some basic forms of stage movement, the process of movement development. Pre-requisite 367.145.

367.146 Advanced Costume Design 1 h.
Study of costume, sketching, and surface development. A selection of costume design and production; character and social analysis. Use of sketching, developing costumes, puppetry, period costumes. Pre-requisite 367.145 and 367.144.

367.146 Advanced Lighting Design 1 h.
Lighting design in the theatre as a technique of production design, concept creation, and development of production concepts, projects in lighting design. Pre-requisite 367.145 and 367.144.

367.146 Basic Painting 3 h.
An introduction of the practice of painting a technique in 3D Plastic. May be repeated with consent of instructor.

367.146 Puppets and Carving 2 h.
Design and construction of original puppets in new plays in relation to playwrights' work on a working example. Puppets' choice of instructor. May be repeated.

367.146 Sculpture 3 h.
The techniques of sculpting explored through production of both found and sculpted materials into papier-maché.

367.146 Woodworking for Other Media 3 h.
Woodworking for sets and technique; the particular demands of other media.

367.146 Puppets and Directors 3 h.
Direction of puppet plays on original material. Pre-requisite, consent of instructor.

367.146 Dramaturgy 3 h.
The process of the Dramaturg in a theatre organization duties and responsibilities. Practical experience in script analysis, play revision, and development of the performance. Pre-requisite, consent of instructor.

367.146 Advanced Puppets 3 h.
The director's role in a production. Pre-requisite, consent of instructor.

367.146 Director's Seminar 3 h.
Research and practical experience in directing a production, working with actors, directors as image-maker and communicator, an introduction to theatrical state. May be repeated for credit. Pre-requisite, consent of instructor.

367.146 Classical Drama 1700-1850 3 h.
Drama in Italy, France, and Germany from the death of Voltaire to the close of the Romantic movement. Same as 368.140.

367.146 Japanese Theatre 3 h.
Same as 368.140.

367.146 Greek Theatre 3 h.
Same as 368.140.

367.146 Chinese Theatre 3 h.
Same as 368.140.

367.146 Roman Drama 3 h.
Same as 368.140.

367.146 Greek Drama 3 h.
Same as 368.140.

367.146 Modern Drama 3 h.
Same as 368.140.

367.146 Shakespeare 3 h.
Same as 368.140.

367.146 Medieval Drama 3 h.
Same as 368.140.

367.146 19th C Drama 3 h.
Same as 368.140.

367.146 18th C Drama 3 h.
Same as 368.140.

367.146 17th C Drama 3 h.
Same as 368.140.

367.146 16th C Drama 3 h.
Same as 368.140.

367.146 14th C Drama 3 h.
Same as 368.140.

367.146 Shakespearean Drama 3 h.
Same as 368.140.

367.146 Shakespearean Drama 2 h.
Same as 368.140.

367.146 Shakespearean Drama 1 h.
Same as 368.140.

367.146 Shakespearean Drama 3 h.
Same as 368.140.

367.146 Shakespearean Drama 4 h.
Same as 368.140.

367.146 Shakespearean Drama 5 h.
Same as 368.140.

367.146 Shakespearean Drama 6 h.
Same as 368.140.

367.146 Shakespearean Drama 7 h.
Same as 368.140.

367.146 Shakespearean Drama 8 h.
Same as 368.140.
Comparative Literature

Bachelor of Arts

The undergraduate major in comparative literature provides an individualized program of study in literary and interdisciplinary studies designed to promote cultural awareness, to increase speaking and writing skills, and to develop capabilities for intercultural reasoning. Students who major in comparative literature may expect to achieve training in foreign languages, to gain an international perspective on literature, and to become acquainted with interdisciplinary approaches to cultural study. In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and business. It also offers a suitable preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires that students study one history, philosophy, or literature in historical context. Familiarity with the literatures and cultures of other nations is afforded by course work that develops an understanding of various national literatures and relations between literature and other arts such as film, painting, or translation, as well as by theoretical inquiry into the nature of literature itself. Course work in comparative literature also emphasizes interdisciplinary relations between literature and other areas of study such as history, philosophy, languages, anthropology, archaeology, law, and psychology.

Majors in comparative literature do not proceed through a strictly prescribed common curriculum toward the B.A. degree. Working closely with faculty advisors, students develop coherent, individualized programs of study that reflect their own interests and developing skills.

In addition to completing general education requirements for the B.A. degree, majors complete a minimum of 36 semester hours in courses distributed as follows:

Comparative Literature 48:40:1 Major Texts in World Literature I-II 6 s.h.
48:95 Undergraduate Seminar 3 s.h.
48:100 Introduction to Critical Problems 3 s.h.
Two elective comparative literature courses at the 100 level 6 s.h.

Foreign Literature Courses in one foreign literature (read in the original language) beyond those courses taken to satisfy the general education requirement in foreign language: nine semester hours (one course in composition and conversation may count toward the major).

Related Areas
Courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature: nine semester hours.

Master of Arts

The degree of Master of Arts in comparative literature requires 36 semester hours of study in 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 combine courses in the program and in the individual allied departments to design a coherent course of study.

Formal 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 issues in comparative literature. The M.A. may also be awarded after 45 semester hours of graduate study with a grade-point average of 3.35, 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 areas of literature. One is studied in historical depth, and two or others in limited departments 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

Symbolist poetics and modern literature

Post-Kantian philosophy and literature

Satire, rhetoric, and the theory of social interaction

Literature, History, and Criticism

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral examination centers on the dissertation and its background.

Admission

A study of literature across linguistic boundaries requires special training in language. 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 undergraduate records for graduate students in comparative literature, available by request from the program office.

Courses

4600 Cooperative Education Internship 0 s.h.
4610 Major Topics in World Literature I 3 s.h.
4635 Reading and analysis of major literary texts from Homer to the Renaissance in chronological sequence; emphasis on the interpretation of literature and history. Same as 46:4.
4641 Major Topics in World Literature II 3 s.h.
4650 Introduction to Literature 3 s.h.
4651 Introduction to Film Analysis 3 s.h.
4652 Master's level lecture analysis of various literary texts, films, and other forms of mass communication. Emphasis on the interaction of the literary and visual arts. May be used to fulfill literature requirement, but not both. Course includes slide show by slide lecture, lecture-illustrated, seminar participation, and examination of other courses. Same as 46:4.
4675 Undergraduate Seminar 3 s.h.
4676 Senior Seminar 3 s.h. (closed to freshmen and sophomores, with special permission required for seniors)
4680 Foreign Literature 3 s.h.
4681 Foreign Literature 3 s.h.
4682 Foreign Literature 3 s.h.
Minor
A student in the College of Liberal Arts may complete a minor in economics by earning at least 18 semester hours of credit in courses offered by the Department of Economics, including at least 12 semester hours in courses numbered 100 or above. Students interested in an economics minor should obtain information concerning course selection from the department office.

Honors
Undergraduate students working toward the B.A. or B.S. degree with a major in economics are eligible to participate in the Honors Program in economics. The Honors Program offers the high-achieving student an opportunity to pursue special research under the guidance of faculty members. Students must complete four 100-level economics courses, including E6:103 and E6:106, before the senior year. They must also register for E6:187 Senior Thesis in Economics and E6:188 Senior Seminar in Economics for three semester hours of credit in each during the senior year. Complete a senior thesis under direction of an economics faculty member of professional rank, and take during the final semester of the program an examination covering their departmental honors work. A student satisfactorily completing the Honors Program receives his or her degree "with honors.

Bachelor of Business Administration
The program for the B.B.A. degree is described in the "College of Business Administration" section of the Catalog.

Course Work for Nonmajors
Departmental course E6:102 Principles of Economics satisfies the College of Liberal Arts general education requirement in social sciences. It provides an introduction to specialized topics of upper-division courses. Students with limited exposure to economics may examine the ideas and concepts behind current policy issues in E6:107 Contemporary Economics Problems and Policy.

Course work in economics can be related to majors in other fields—securing examples, history majors might take E6:101 American Economic History and E6:103 Microeconomics, political science majors could elect E6:118 Economics of the Government Sector and E6:141 Economics of American Industries. A number of students combine related interests by pursuing double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs
The department offers Master of Arts and Doctor of Philosophy degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses. The M.A. degree program is designed to provide breadth in economic training without the requirement of specialization. The M.A. program can be completed within 18 months.
Within the M.A. program, the department offers concentrations in econometrics, economic history, health economics, history of economic thought, industrial organization, international economics, labor economics, economic theory and mathematical economics, monetary economics and policy, public finance, and regional and urban economics.
The Ph.D. program is designed to provide students with rigorous training in microeconomic theory, macroeconometric theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.
See "College of Business" section for details on requirements of these degree programs.

Special Seminar
Each year the department offers a seminar program involving eminent economists from the local area, from the university, and from the government, as well as presentations by visiting student members of the department.

Courses
Primarily for Undergraduates
Note: E6:1 and E6:2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

E6:00 Cooperative Education Internship
3 s.h.
E6:1 Principles of Economics
3 s.h.

E6:2 Principles of Economics
3 s.h.

E6:05 Contemporary Economic Problems and Policy
3 s.h.
Economics of health care and labor markets, and issues of environmental and social equity. Problems and policy issues. Not open to students who have taken E6:1 or E6:2.

E6:24 Washington Internship
An opportunity to students participating in the Washington Center for Learning Internships Program. For details, see "Programs."
Undergraduate Programs

Bachelor of Arts

A Bachelor of Arts degree with a major in English requires between 30 and 50 semester hours of credit in courses offered by the Department of English, nine of which should come from courses dealing principally with literature written before 1800 and at least 15 of which should be taken in residence at The University of Iowa.

In conformity with their academic advisors, students for muse proposed programs of study designed to satisfy their current interests and achieve their future goals. Normally they begin with courses emphasizing close reading of poetry, fiction, drama, and expository or argumentative prose. Later they study particular literary forms and the literature and culture of different historical periods.

English majors may also take courses in such diverse subjects as following, 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 functional writing (exposition or argument) in the fields of journalism, business, science, or the arts.

To buttress their understanding of literature, English majors are encouraged to choose elective courses from such disciplines as history, Classics, or modern foreign languages, art, music, history, and the fine arts. Students planning to teach in primary or secondary schools will add appropriate courses in education. Those seeking careers in business, politics, or effect courses in business, law, or the sciences.

As soon as students decide to undertake an English major, they should consult the director of undergraduate study in the English department office who will assign them a faculty advisor. In the English office, two, they may obtain a pamphlet on Beyond Your English Major, and other printed material exposing departmental programs, courses, and special events.

Minor

A minor in English requires 16 semester hours of course work in Department of English courses. Two of these semester hours should be in advanced courses (B811 and above). Courses for the Liberal Arts general education requirements must contribute toward the minor in English.
will have to work with details of expression in English.

They will need advanced training in writing—syntax, punctuation, poetry, and fiction are all important—because these courses will help students understand and utilize linguistic, rhetorical, and stylistic devices in various kinds of writing.

They will need to understand the nature of the English language, including syntax, phonology, and semantics, because this knowledge should help students understand language development and how language can be adapted to meet various speaking and writing situations.

Since communication also occurs visually, students should explore the relationships between written, oral, and visual media.

Finally, students should explore the processes of reading, from the first stages of learning to read through advanced stages when a reader comes increasingly to understand and respond to details of meaning and nuances of expression.

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

Prospective English teachers should remember that an undergraduate degree represents only minimal training, so they should plan a program which will permit graduate study in literature. English majors seeking teaching certification must plan with their advisors appropriate education courses to be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any other coursework.

The department also participates in a joint major in English and elementary education. Those interested in such a program should consult their advisors in elementary education.

Students seeking certification to secondary teaching in fields other than English may seek minor certification in English. This is particularly appropriate for students majoring in speech or journalism. Such a student must complete 20 semester hours of English, exclusive of 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 century. In addition, the 26 semester hours of English, the student is required to take 75.115 Methods: English in the College of Education's Division of Secondary Education.

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

Graduate Programs

Master of Arts (Literary Studies)

This program offers an introduction to the professional study of literature. It provides a general knowledge of the major works of English and American literary history, as well as a transfer sensitivity to artistic language as a medium of expression. Each student, in consultation with an adviser, will plan a course of study that reflects as much as possible an individual pattern of interests. Depending on the nature of the thesis or comprehensive examination, the program requires either 30 or 36 semester hours of graduate-level credit, of which 24 semester hours must be earned in residence.

Course requirements

Course work must be taken in each of these areas:

- Literary history (up to five courses, depending on graduate preparation)
- Language and writing (one course)
- Critical methods (one course).

Remaining semester hours may be used for electives, including graduate courses in other departments when such courses are germane to the student's degree objective.

Thesis or Comprehensive Examination

In order to graduate, students must do one of the following:

- Satisfactorily complete a 10,000- to 15,000-word thesis for 3-6 semester hours of credit, as well as pass an oral defense conducted by the thesis committee. The thesis option is available only to students who show outstanding promise in their writing and literary studies, is contingent on the approval of a thesis proposal.
- Pass an 8-hour written comprehensive examination based on a list of literary texts, a copy of which may be obtained from the department's graduate office.

Given its design, the master's program may serve either as an end in itself or as preparation for doctoral studies.

Master of Arts (Expository Writing)

This program emphasizes the theory, analysis, practice, and pedagogy of expository writing for students wishing to become teachers or critics of expository writing, or professional writers in such areas as the humanities, business and technical fields, or free-lance work.

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

To qualify for the M.A. with emphasis in expository writing, a student must complete 30 semester hours of graduate work with a grade-point average no lower than 3.0. At least 24 of these semester hours must be earned in residence. The University of Iowa, including nine semester hours of work in advanced composition with a grade of B or better. In addition to these 30 semester hours of course work, students will be required to complete at least three and no more than six semester hours of credit for the thesis.

In consultation with an adviser, the student will design an approved program of courses. The sequence of study may be highly individual, including courses from widely different areas of departmental but must be coherent organized around the student's interests and capacities as a writer.

Finally, the student will submit to his or her committee a proposal for a thesis, which will be an extended piece of expository writing. Thesis will be an oral examination covering the project, and the finished thesis must receive the committee's final approval.

Students interested in this program should consult the director of the M.A. with emphasis in expository writing, or the director of advanced writing.

Master of Arts and Specialist in Education

This program is designed specifically for the person with a strong undergraduate major in English who wishes to prepare to teach in an English-speaking country. Upon successful completion of the program the student will receive the Master of Arts degree in English and the Specialist in Education degree. Both are nonthesis degrees, but a research paper is required.

This 90-semester-hour program of study includes nine semester hours of open electives, 4 semester hours of English (literature, expository writing, or creative writing), nine of advanced expository writing and/or linguistics, and 14 in professional courses taught by specialists in English and in education. Each student spends one semester in a community college.

Master of Fine Arts

The purpose of the M.F.A. program is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The requirements are flexible, but usually include three semester hours of graduate credit. Earned credits will be in the Writers Workshop, a book-length collection of poems or a novel, and satisfactory performance on an examination on modern poetry or fiction.
Master of Fine Arts with Emphasis in Translation

This alternative to the M.F.A. program in creative writing emphasizes the discipline of translation, viewed as a distinct literary genre. Student programs are individually structured and are designed to develop skills in source and target languages and cultures. The program also seeks to develop awareness of the traditions of translation and the history of translation theory. The program normally requires 48 semester hours of graduate credit, including a minimum of 12 semester hours of Translation Workshop; a collection of translated poetry, fiction, or drama; and an examination in principal criticism involving problems of translation.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and service required of college and university faculty members. The doctorate requires 72 semester hours of graduate credit, of which at least 30 must be earned in residence at the University of Iowa.

Concentrations are possible in areas of literary history, literary criticism, writing, rhetorical theory and stylistics, folklore, 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.
- A dissertation of significant historical areas, two seminars:
  - A part-written, part-oral comprehensive examination paper, a dissertation of which must be a historical period of English or American literature.
  - A dissertation, which may be either a scholarly work or a piece of imaginative writing; and
  - A final examination in defense of the dissertation.

All doctoral candidates are required to gain teaching experience, preferably in the major or minor literature courses of the College of Liberal Arts.

Interested students should write to the department's director of financial aid and doctoral admissions for more detailed explanations.

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 sources are limited, normally fewer than half the new doctoral students receive aid. Most, but not all, advanced doctoral students are supported by aid. Financial aid applications are considered only from students who have been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by February 15 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission

All applicants for admission to any graduate program in English must meet the general requirements for admission to the Graduate College, and must submit at least two letters in support of the application. In addition, M.F.A. applicants should submit samples of their poetry or fiction to the director of that program, and Ph.D. applicants should submit a representative sample of their writing—a course paper, seminar paper, or these chapters—to the department's director of doctoral study.

Writing Programs

For the past 50 years, the University of Iowa has been a national leader in virtually all areas of the teaching of writing. In 1922 it founded the first institution of higher education to accept creative dissertations for advanced degree programs.

Founded in 1926, the Writers Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1966, brings numbers of prominent foreign writers to campus each year.

The University of Iowa has also been a leader in the area of comparative writing and rhetorical theory; it is one of the few academic institutions in the nation which offers a full range of graduate course work in this area.

The University Library is strong in all areas of English and American literature. It is especially noteworthy for its collection of American periodicals, its holdings in nineteenth and twentieth-century works, including the Legion Hall collection, and its manuscript collections of twentieth-century authors.

The department provides a wealth of opportunities for student involvement in critical, scholarly, and creative publications. The Iowa Journal of Literary Studies is a quarterly publication edited by graduate students, which features creative and scholarly work of students in English and related areas. Students may also participate in literary organizations by working with The Iowa Review, Phyllo Quarterly, and the Windhover Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the Knapp Center for Old-Time Music, and the Midwest Modern Language Association. Visiting writing and teaching positions on the campus almost every week, and various conferences and literary "festivals" complement the schedule of class work.

Courses

Individual permissions for some of the English courses listed below are not included because the course and emphasis of many courses varies considerably from one semester to another. Detailed course descriptions for all offerings in a specific semester are available in the English department's office well in advance of the beginning of each semester.

General Education

The general education course requirements in the humanities may be satisfied by courses in English. Interdepartmental: Interpretation of Literature, and two other appropriate humanities courses.

The department advises that students in Business Administration, Nursing, or Engineering wishing to fulfill the English B.G. 1 requirement by examination should obtain information from the Liberal Arts Advisory Office. English majors may not register for B.G. courses to fulfill requirements for the major.

B.G. 1: The Interpretation of Literature

Examination of poetry, short fiction, and the novel, mainly English and American. A prerequisite for all English courses in the humanities.

B.G. 2: Biblical and Classical Literature

Survey of Hebrew and Greek Old Testament literature, Homer, Greek dramatists, Plato, Virgil, and others.

B.G. 3: Medieval and Renaissance Literature

Survey of English literature from Beowulf through Shakespeare, Milton, and others. Prerequisite: B.G. 1.

B.G. 4: Ideals of Tragedy

Major representations of tragic vision of human experience in various periods and cultures from classical times to present. Prerequisite: B.G. 1.

B.G. 5: Varieties of Comic Voice of the Past and Present

Varies each semester; topics may include satire, burlesque, farce, satire, and the grotesque. Prerequisite: B.G. 1.
For Undergraduates

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

5:00 Cooperative Education Internship 1 h.
5:08 Modern Fiction 1 h.
5:00 Modern Poetry 1 h.
5:00 Modern Drama 1 h.
5:00s Commonwealth and Biblical Literature 3 h.
5:00F The Renaissance in Europe 3 h.

Introductory Close Reading of Texts

These are the only-limited-enrollment discussion courses in which a small number of participants read carefully to illustrate representative problems in interpreting and evaluating literature.

8:30 Critical Approaches to Literary Works 3 h.
8:30 Reading Poets 3 h.
8:40 Major Texts in World Literature I 3 h.
Same as 44:45.
8:40 Major Texts in World Literature II 3 h.
Same as 44:58.
8:40 Survey of British Literature I 3 h.
8:40 Survey of British Literature II 3 h.
8:40 Literature of the English Language 3 h.
8:51 Major British and American Poets I 3 h.
8:52 Major British and American Poets II 3 h.
8:54 American Literary Classics 3 h.
8:58 Selected Works of the Middle Ages 3 h.
8:58 Shakespeare's Contemporaries 3 h.
8:58 Selected Works of the Eighteenth Century 3 h.
8:58 Major Nineteenth-Century British Works 3 h.
8:58 Selected Early Modern Works 3 h.
8:58 Selected Works of the Twentieth Century 3 h.
8:58 Masterpieces of the Renaissance 3 h.
8:58 Selected English Romantic Works 3 h.

For Undergraduate and Graduate Students

Primary for upperclass students and beginning graduate students, these lecture courses are designed to present major works and authors within the context of the social, political, intellectual, and artistic movements and trends of their time. Students who have established backgrounds in history or related arts are especially welcome. Undergraduate majors in English are urged to include at least one course of this type in their last half of their majors.

8:50 Introduction to Critical Problems 3 h.
8:51 Literature and Culture of the Middle Ages 3 h.
8:52 Literature and the Culture of the Renaissance 3 h.
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Professional
Although open to all graduate students, the primary purpose of these courses is to offer theoretical and practical training to those who plan to teach.

SP 20 Advanced Reading Companion
SP 30 Special Reading
SP 40 Practical College Vocabulary
SP 50 Researching
SP 60 Professional Conferences
SP 70 Teaching

Expository Writing
General Interest
These courses are designed to serve the general interests and needs of undergraduate and graduate students in all areas of the University. They offer a means of composition and various kinds of informative, persuasive, and expressive writing.

SP 10 Expository Writing
SP 20 Technical Writing
SP 30 Research Paper Writing

Special Interest
These courses are designed to serve the special interests and needs of advanced undergraduate and graduate students in particular academic and professional areas of the University. They offer practice in specialized forms of writing for specialized purposes and audiences.

W 110 Writing for the Humanities
W 112 Writing for the Sciences
W 113 Writing for Business and Industry
W 114 Writing for the Social Sciences
W 115 Writing for the Arts
W 120 Writing for the Non-Journalist

Writing (Cont.)
W 130 Advanced Expository Writing
W 150 Free-Lance Writing
W 150 Free-Lance Workshop

Theory and Practice
These courses are designed to serve the interests and needs of advanced undergraduate and graduate students who aim 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.

EN 170 Introduction to the Essay
EN 180 Approaches to the Teaching of High School Writing
EN 210 Writing Workshop for Teachers
EN 220 History of Rhetoric
EN 230 Theory of Style
EN 240 Reading in Rhetoric
EN 250 Philosophy of Language and the Nature of Writing
EN 260 Rhetorical Theory: Analysis and Application
EN 270 Essays in Writing
EN 280 Approaches to Teaching College Writing
EN 290 Methods of Teaching Freshman Composition
EN 300 Rhetoric in the Teaching of Writing
EN 310 Art of the Essay
EN 320 Teaching in a Writing Lab
EN 330 Seminar in Writing
EN 340 Seminar in Expository Writing
EN 360 Special Problems in Expository Writing
EN 370 Seminar in Teaching of Writing

Creative Writing
These courses are designed to serve the general interests and needs of undergraduate and graduate students in all areas of the University. They offer practice in various elements and forms of creative writing.

EN 200 Creative Writing
EN 210 History and Theory of Translation
EN 220 Fiction Writing
EN 230 Poetry Writing
EN 240 Basic Reporting
EN 250 Advanced Fiction Writing

Professional Workshop
These courses are designed to serve special needs and interests of 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.

EN 127 Playwrights Workshop
EN 130 Undergraduate Writing Workshop: Fiction
Bachelor of Arts in French

The undergraduate major in French may be completed with an emphasis in literature, civilization, teaching, or applied French.

Courses taught in English do not count as credit toward the French major, nor does a grade of D in any required French course.

**Literature Track**

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 36 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:11-11 Second-Year Composition 6 s.h.
- 9:15-16 French Conversation: Third Level 2 s.h.
- 9:16 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 160 level), plus a film 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 a French major with a minor in another area such as history, political science, pre-law, or journalism, the civilization track requires 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:11-11 Second-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 160 level.

**Teaching Track**

The teaching track requires 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:11-11 Second-Year Composition 6 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:126 French Conversation: Fourth Level 2 s.h.

A minimum of five 100-level courses, of which at least two are in literature and two in civilization, totaling 15 semester hours and including at least two courses above the 160 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 foreign affairs, the applied French program requires 38 semester hours in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:11-11 Second-Year Composition 6 s.h.
- 9:15-16 Business French 3 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:16 French Conversation: Fourth Level 2 s.h.
- 9:155 Commercial and Technical Translation 3 s.h.
- 9:167 Translation Project 3 s.h.

Two courses each in French civilization and literature 12 s.h.

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

**Bachelor of Arts in Italian**

Requirements for the major in Italian include:

- 18:11-12 Intermediate Italian 6 s.h.
- 18:111-112 Advanced Composition and Conversation 8 s.h.
- 18:105-106 Introduction to Italian Civilization 6 s.h.
- 18:119-120 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 25 s.h.

**Honors**

The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:

- 9:158 Honors Readings 3 s.h.
- 9:199 Honors Seminar 3 s.h.
- An additional 3 credits of French literature, language, or civilization at an appropriate level (numbered above 160) 3 s.h.

**Summer Program in France**

The department is cosponsor of a summer program in France for students enrolled in the three Iowa Regents universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but does
not require that the student be a French major. The program is designed to prepare students for careers in education, including teaching at the elementary and secondary levels. The program emphasizes language proficiency and cultural competence. The 36-credit program includes courses in French language, literature, and culture. Students must complete a 12-credit internship. The program provides opportunities for study abroad and is accredited by the Commission on Accreditation ofj111 Foreign Language Programs. For more information, contact the Department of Modern Languages and Literatures.

Summer Program in Quebec
The department participates in the CUC Summer French Program in Quebec at the Universite Laval. The program offers a unique opportunity for students to immerse themselves in French culture and language. The program includes a 3-week intensive language course, cultural activities, and visits to major tourist attractions. Students will have the opportunity to practice their French skills in a real-world setting.

Language House
The French and Italian department maintains close connections with the Maison Francaise in the Foreign Language Building. Residents of the house have the opportunity to practice their French language skills in a supportive and inclusive environment. The house also offers cultural programming and events throughout the year.

Graduate Programs
Master of Arts in French without Thesis
The program offers a 30-credit course of study that focuses on advanced French literature, language, and culture. Students will have the opportunity to engage in original research and may choose to write a thesis or complete an independent study. The program is designed for students who wish to pursue advanced study in French.

Master of Arts in French with Thesis
The program offers a 36-credit course of study that focuses on advanced French literature, language, and culture. Students will have the opportunity to engage in original research and will be required to write a thesis. The program is designed for students who wish to pursue advanced study in French and who are interested in pursuing a career in academia or research.

Doctor of Philosophy
The program offers a 72-credit course of study that focuses on advanced research and scholarship in French literature, language, and culture. Students will have the opportunity to engage in original research and will be required to write a dissertation. The program is designed for students who wish to pursue advanced study in French and who are interested in pursuing a career in academia or research.
Italian Courses

For Undergraduates and Graduates

Admission

Financial Aid

Graduate

Primarily for Graduates

Genetics

Italian Courses

For Undergraduates and Graduates

Admission

The prospective doctoral student in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, inorganic chemistry, physics, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area can make up deficiencies during the first year of graduate study.

Admission to the program is based on review of the applicant's undergraduate academic record, performance on the Graduate Record Examination (GRE) APTitude Test, verbal, quantitative, and analytic aptitude tests, and letters of recommendation.

Requirements for admission are as follows. Although almost all students are currently working toward the Ph.D. in genetics at The University of Iowa, there are noted grade-point averages greater than 3.2 and GRE totals (verbal plus quantitative) exceeding 1250, students with lower grade-point averages or GRE scores may be admitted, depending on other indicators of academic potential. / The program accepts applications at any time.

Financial Aid

All graduate students receive a financial stipend that is in the range of $7,500 (plus tuition) per year or higher depending on the source of the support. Most of the financial support comes from the Graduate College and the Department of Biology. Predoctoral traineeships, research assistantships, teaching assistantships, fellowships, individual research grants, and institutional training grants. 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, Botany, Microbiology, and Zoology offer departmental Ph.D. programs in which students may specialize in a particular aspect of genetics. See departmental descriptions elsewhere in the Catalog for further information about these programs.
Courses
The following genetics courses are available to graduate students. Some are offered every year; others are offered periodically.
98:126 The Chemistry of Biological Materials 3 s.h.
98:130 Metabolism 3 s.h.
98:136 Biochemistry of Interorganic Macromolecules 3 s.h.
98:200 Topics in Molecular Biology 1-2 s.h.
98:214 Cytogenetics 3 s.h.
216:160 Genetics and Biogenesis of Cell Organelles 2 s.h.
216:215 Genetics Seminar 0-2 s.h.
61:176 Microbial Genetics 3 s.h.
61:175 Microbial Genetics Laboratory 1 s.h.
61:179 Comparative Microbial Genetics and Physiology 3 s.h.
61:270 Topics in Molecular Biology 3 s.h.
37:162 Population and Evolutionary Genetics 3 s.h.
37:163 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.
37:173 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.
37:78 Advanced Genetics 2 s.h.
37:250 Developmental Genetics 2 s.h.

Geography
Department Head: David R. Harvey.
Faculty: associate professor J. W. Fuller, Andrew M. Ham, David L. Kessel, Michael C. Menzie, David R. Reynolds, David N. Thomas, associate professors Lawrence A. Beattie, John A. Northrup, N. Reck, associate professor John P. Schmitz, assistant professors Mary Ann B. Lee, Galen A. T. Thomas.

Geography seeks to explain spatial organization and zonal differentiation through studies of significant patterns and processes. The discipline is concerned with patterns of environment and ongoing forces which promote change within and between human and physical systems. Geography is a composite science, in that a broad base of knowledge from many related disciplines is required, as well as an analytical technique which seeks explanations of specific research questions from a distinctly geographic perspective.

Students who elect courses in geography find they develop insights and methods of inquiry which are particularly applicable to understanding many of the complex problems confronting affluent 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, location of services, and conflicts between nations are some of the issues which will be dealt with during geographical training.

Studies in geography also provide students with concepts and methods for organizing such spatial units as urban areas, marketing regions, school districts, health service areas, drainage basins, and areas of environmental concern. Thus, geographers can make substantial contributions towards understanding the behavior of individuals, or societies, and of 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, market area analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to enter the teaching profession as 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 which provides educational opportunities for a variety of students: for the non-major interested in the field, for the major in the program, or for elective courses as they relate to a liberal education, or for students interested in erecting a cluster of courses in conjunction with another discipline or for the B.G.S. degree; and for students interested in acquiring a major in geography. The department also plans in significant interdepartmental programs involving global, urban, and environmental concerns.

Programs for the Undergraduate Major
Students majoring in geography may choose 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 choose to develop expertise in one of these areas, or they may choose to 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 degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts degree.

Requirements
All geography majors must complete a minimum of 26 semester hours of geography coursework, work at least 15 of which must be at the 100 level. Many students will find that they will need more than the minimum requirements for mastery of a specific subject.

All geography majors must complete:

44:110 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors
and one of the following statistical courses:
22:127 Applied Statistical Methods and Computations
22:26 Elementary Statistics and Inference
22:101 Biostatistics
22:102 Introduction to Statistical Methods

In addition, Bachelor of Science students must complete a mathematics requirement consisting of one of the following courses:
22:M3 Mathematical Techniques II
22:M5 Fundamentals of College Mathematics I,
or
22:M5 Mathematics for the Biological Sciences
and one of the following courses:
22:M6 Elementary Functions, 22:M6 Calculus for the Biological Sciences,
22:M7 Calculus I,
or
22:M5 Engineering Calculus I and
a computer science requirement consisting of:
22:C7 Introduction to Computing with FORTRAN, or
22:126 Introduction to Programming with Pascal.

With the consent of the geography faculty, equivalent courses which have objectives similar to these may be accepted in fulfillment of the statistical, mathematical, and computer science requirements.

Recommendations
Students majoring in geography are advised to:

Take both the introductory level courses 44:1 Introduction to Human Geography and 44:3 Introduction to Physical Geography during their freshman or sophomore years.
Take first 44:110 Spatial Organization
International Development Studies

The concentration in international development studies is designed for students interested in international affairs, in the economic, social, and political development of new and old nations; in the solution of regional problems that have global implications; and in cross-cultural comparisons. This concentration aims to give students a deeper understanding of the world in which they will live and work by emphasizing the variety of cultures and societies which exist outside of the United States and to which our country must relate.

Students concentrating in International Development studies are advised to select courses (at least 21 semester hours) from among the following:

- 44.1 Introduction to Human Geography
- 44.3 Introduction to Physical Geography
- 44.11 Introduction to Social Geography
- 44.15 Introduction to Political Geography
- 44.30 Introduction to Economic Geography
- 44.35 World Studies
- 44.121 International Conflict
- 44.124 Introduction to Global Environment
- 44.157 Third World Development Support
- 44.161 African Development
- 44.165 The Changing World
- 44.169 Contemporary Europe: Interaction and Change
- 44.171 European Studies in Contemporary Society

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

- 30.60 Introduction to World Politics
- 32.127 Policy Problems in Industrial Societies
- 32.150 The Political Economy of the Third World
- 32.160 International Politics
- 32.169 Politics of Peace and War
- 66.123 Political Economy of the Military-Industrial Complex
- 66.129 Economic Development of Underdeveloped Areas
- 16.69 Introduction to Colonial Latin American
- 16.90 Introduction to Modern Latin America
- 16.170 Modern African History
- 16.196 China: Opium War to Map

Appropriate foreign language training might also be a part of the student's development studies.

The department cooperates in the Interdisciplinary Global Studies Program.

Individual Programs

Students with more general interests who wish to pursue a Bachelor of Arts degree may design their own individual programs of instruction with the help of their advisors. Such programs must include 26 semester hours of geography, at least 15 of which must be at the 100 level. They also must include the following courses:

- 44.110 Spatial Organization
- 44.155 Undergraduate Seminar for Geography Majors

and one of the following statistics courses:

- 225.127 Applied Statistical Methods and Computation
- 225.25 Elementary Statistics and Inference
- 225.101 Biostatistics
- 225.102 Introduction to Statistical Methods

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 Program

The goals of the department at the graduate level are to prepare students to carry on creative and productive work in geography involving the use of theory, modeling, and formal-verification methods, and to prepare students for positions in research, teaching, or some area of applied geography. The advancement of these goals is demonstrated in large measure by the demand for University of Iowa graduates to fill positions on college and university faculties, in research-oriented institutions, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those interested in academic careers. Opportunities are provided for graduate students to gain practical teaching experience through service as departmental teaching assistants or in other supervised teaching duties.

Master of Arts

The department offers an M.A. program designed for students seeking professional positions in community planning, health planning, market research, resource management, regional development, and transportation as well as for those whose ultimate goal is the Ph.D. The program emphasizes the acquisition of analytical skills and substantive knowledge in a primary and a secondary area of concentration. Areas of concentration include: Location Theory, Regional Development, Behavioral Geography, Political Geography, and Environmental Science. These areas cut across some of the more traditional breakdowns of the discipline and subdivide others. For example, topics of interest in urban geography are included in three subprograms: location theories, regional development, and political geography, while the traditional concerns of economic geography are covered in location theories and regional development. The environmental science subprogram lays stress on physical/hydrological processes, biological conservation, and resource management. Courses which provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and research methodology are an integral part of the M.A. program. The department is also a leading participant in these interdisciplinary programs at The University of Iowa: the Regional Science Program, the Transportation Program, and the Development Support Program. It is possible to obtain the M.A. in Geography while pursuing study in the first two of these.

As soon as possible during the first year of residence, students, in close consultation with their advisor and other faculty members, develop a plan of study for the degree program. This should include a description of the student's interests and should identify clearly the major area (or areas) within geography in which the student wishes to concentrate. The program of study should also emphasize relevant problem-solving methods, and philosophy and epistemology in geography.

The M.A. degree requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be 200- level or above. The following requirements for the degree are: At least four semester hours chosen from among the mini-courses 44.291-292 Geography Analysis and Evaluation: Satisfaction of the department's B.S. degree requirements in mathematics, statistics, and computer programming or their equivalents (see above); complete, with a grade of B or better, at least one three-semester-hour quantitative methods course at a level above that required for the B.S. degree from a list of courses approved by the faculty.

An additional 12 semester hours in geography.

Additional courses in geography or related fields complete the student's program.

Students who wish to experience potentially advanced work with sufficient background are frequently able to complete the program in one full year (including summer sessions).

The M.A. degree is available with or without thesis. A maximum of six...
Doctor of Philosophy

The Doctor of Philosophy degree is designed to prepare students for careers in college and university teaching and in advanced research. It provides programs of study leading to (1) broad knowledge of a field of geography and its literature, as well as (2) a specific field of competence and specialization. The former might represent the general area in which the Ph.D. holder seeks employment, whereas the latter would represent the area of active research involvement.

Students whose objective is the Ph.D. degree in geography are required to complete eight semester hours of 44-201-202 Geographical Analysis I-III and complete with grades of B or better at least two additional quantitative methods courses (six semester hours) at levels above that required for the B.S. degree from a list of courses approved by the faculty. The eight mini-courses comprising 44-201-202 should be taken within the first two years in residence, and must include mini-courses offered by at least six different faculty members. Courses to fulfill the quantitative methods requirement should be taken during the first year in residence.

All doctoral students must also complete two research seminars, preferably during the second year in residence, under the direction of different faculty members. Unless excused by the faculty, Ph.D. candidates are also required to register for 44-350 Research Seminar: Staff each semester while they are in residence. The remainder of the Ph.D. program includes completion of readings, seminars, and independent research in geology, geophysics, geology, agricultural, and natural resources or disciplines closely related to the student's objectives and independent studies or courses which satisfy the tool requirements.

By their fourth semester in residence, doctoral students should submit a written report that includes an assessment of progress to date, an outline of the area within geography in which they intend to specialize, and a proposed plan of study for the following year.

Preferably during the second year in residence, doctoral students who have been admitted to the graduate program without advanced credit must register for an original research paper to the faculty, with the approval of their advisers. Students who have been admitted with advanced graduate credit of 24 semester hours must register to submit this paper earlier. The faculty will pass upon the paper at the time of registration and thus demonstrated. Students become Ph.D. candidates when their qualifying papers have been accepted.

All doctoral candidates are expected to have supervised experiences as classroom instructors and research assistants before being awarded the Ph.D. degree.

Regional Science

The department also offers graduate study in regional science. In addition to the requirements for the M.A. or Ph.D. degree in geography, students selecting regional science as their field of study are required to take courses in location theory and analysis, regional economic development, methods of regional analysis, microeconomic theory, macroeconomic theory, and operations research. Doctoral candidates in the field of regional science also are expected to complete courses in philosophy and methodology in geography and in economics as well as three courses in a field of specialization such as location theory, regional economic development, environmental systems management, transportation modeling and policy, or population studies. Students may choose to apply to the Department of Economics to earn master's degrees in economics in addition to their master's and doctorate in Geography, because completing the regional science requirements entails satisfying most requirements for the master's in economics.

Transportation Specialty

The Geography Department of the University of Iowa offers the M.A. and Ph.D. degrees with specialization in transportation systems analysis. The transportation specialty draws on the resources of the school of engineering and the departments of economics and urban and regional planning as well as those of the geography department. The specialty has a strong quantitative orientation. It is designed to enable students with a broad range of quantitative skills relevant to transportation and urban and regional analysis. It also educates students with an appreciation of political and organizational considerations affecting transportation systems, and of the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban and regional planning and analysis, three quantitative methods courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have studied calculus or who have taken courses in the humanities, students who have not studied calculus who are undergraduates or who have research or teaching assistantships may require an additional one-two semesters to complete this program. Upon completion of the M.A. program with specialization in transportation, students receive a transportation certificate in addition to their graduate degree.

Ph.D. students, in addition to taking the courses recommended for M.A. students, are encouraged to take advanced courses in areas such as economics, operations research, regional development and economics, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation.

Graduate Admission

In addition to regular rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the department considers the applicant's undergraduate grade-point average, especially of his or her junior and senior years; scores on the Graduate Record Examination (GRE) Aptitude Test; three letters of recommendation; and an essay in which the applicant sets forth the reasons for wanting to study geography at the University of Iowa.

An applicant with an undergraduate grade-point average between 2.3 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she achieves a grade-point average of 2.75 or better in the first 12 semester hours of graduate work as approved by the department.

Foreign students, and those from undergraduate institutions that evaluate students on a basis other than grade-point average, will be considered according to their relative academic standing in their respective institutions.

Financial Assistance

A number of graduate appointments as teaching assistants and research assistants are available. Awards are based on merit and a student must ordinarily have achieved a combined score of 1100 on the GRE in the verbal and quantitative sections, and have a 3.0 undergraduate or graduate grade-point average, to be appointed to an assistantship. Applications for graduate appointments should ordinarily be received by February 15.

Facilities

The department possesses a unique complete graphics hardware system in the IMAG PADS 5 mini-computer that supports a GRAF PEN GP-3 graphic display. The PADS 5 is a 24K system with a CRT for on-line editing and an accompanying software support package, DIGIT SERIES, developed locally that allows for a broad range of computer graphic applications. This system is linked to one of four PRIME 750 SIV/64s, each supporting 48 terminal stations linked to the IBM 370/ 168. Complementary computer software systems are an increasing number of sophisticated software packages that will dramatically improve interactive computing capabilities.
Resources and 12.24 Introduction to Environmental Geology, a team-taught, laboratory-les of the class designed to fulfill the College of Liberal Arts general education requirement for natural science studies.

Other offerings for nonmajors include a lecture sequence for persons interested in a general survey of geology, and several advanced courses with few prerequisites—paleontology, geology of Iowa, energy in contemporary society, a planet in crisis, remote sensing, geomorphology, and oceanography.

Undergraduate Programs

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy the language requirement with French, German, or Russian, and the social science requirement with approved courses in economics, geography, and/or anthropology.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily for preparation as graduate study and for employment in industry. Required courses in this program:

12.5 Introduction to Geology 4 s.h.
12.6 Evolution of the Earth 4 s.h.
12.41 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.52 Structural Geology 5 s.h.
12.92 Geologic Field Methods 3 s.h.
12.113 Summer Field Course 6 s.h.
12.121 Principles of Paleontology 3 s.h. 
At least two elective geology courses 9 s.h.

Total: At least 39 s.h.

(Note: the student may substitute 12.23 Earth History and Resources for 12.6 Evolution of the Earth, but 12.5 is preferred.)

The geology major requires at least 10 semester hours of college mathematics, including 22M:26 Calculus II or 22M:138 Engineering Calculus II. Computer science or statistics courses may be counted toward the 10-hour requirement. Additional mathematics is strongly recommended.

Eight semester hours of physics, eight semester hours of chemistry, and a one-semester lab course of college zoology or botany 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 is 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 such areas as conservation and environmental problems. Course requirements for the B.A. in geology:

12.5 Introduction to Geology 4 s.h.
12.6 Evolution of the Earth 4 s.h.
12.41 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.121 Principles of Paleontology 3 s.h.
12.121 Field Course (two sections) 4 s.h.
Geology electives 12 s.h.

Total: 35 s.h.

(Note: the student may substitute 12.23 Earth History and Resources and/or 12.24 Introduction to Environmental Geology for 12.6 Evolution of the Earth, but 12.5 is preferred for the major.)

The B.A. in geology requires at least ten semester hours of university-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, zoology, and anthropology.

Original Research

A junior or senior who is ready to pursue original research for credit in geology may assist a faculty member or graduate student with a current research project, or initiate a small-scale project involving research, laboratory, and library investigation. Independent study in geology may also be considered. Undergraduate courses have produced term reports which 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 12107 Geologic Orientation.

All graduate students in geology must perform teaching, research, or related appropriate services as part of the degree program.
Prospective graduate students in geology should consult the "Rules and Regulations" in the Graduate College section of the Catalog for general admission and graduate study requirements.

Master of Science

The M.S. degree programs are designed to complete the student's broad fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level. Entering graduate students are assigned to a general graduate advisor. Before the end of the second semester, the student should have selected a research area and related thesis topic. The chair then approves a thesis advisor and two additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval of a suitable program of course work, and for satisfactory development of research plans as outlined in a thesis proposal which is submitted to departmental 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's degree candidates complete at least one-half of the Ph.D. language and tool requirements as part of the master's program. Course work taken to satisfy these requirements does not count toward the master's-hour requirements for the degree.

To qualify for admission to the final masters' examination, the graduate student must have at least a 3.0 grade-point average of credit in all graduate courses, which are being offered toward the 30 semester hours minimum requirement for the degree. Additionally, the grade-point average of all graduate geology courses is to be at least 3.0. Not more than eight semester hours of thesis and research may be counted toward the 30 semester hours minimum required for the degree program.

Master of Science with Thesis

Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

Master of Science without Thesis

The Department encourages few students to pursue the M.S. without thesis, which requires that the applicant have approximately three months' experience working under supervision of a professional geologist, and who has some experience in one phase of geologic activity.

If possible, the student should receive prior faculty permission to apply the experience toward the degree. The student must submit a written report on the activity and on the geologic principles it involved and its value and broader applications and implications. No college credit is granted for this activity. The M.S. degree without thesis requires at least 38 semester hours of graduate course work, of which at least eight hours must be earned in other departments of the University. The faculty may also require the students to submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for this report. The final 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 specialized 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 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 first 24 semester hours of graduate study. Departmental language and tool requirements for the Ph.D. degree may be met by either achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language. Competence is normally achieved by satisfactory completion of a one-year sequence of appropriate courses, proficiency by satisfactory completion of a two-year sequence.

French, German, and Russian are languages which meet departmental requirements; statistics and computer science are suitable tool areas. In exceptional circumstances the faculty may approve other languages or tool areas. Courses in such related disciplines as botany, chemistry, biochemistry, and zoology are not regarded as satisfying tool requirements, although they may provide indispensable background for the various areas of geological specialization.

Course work taken to satisfy language and tool requirements may not be applied to credit requirements for the degree. These 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 crosslisted between geology and other departments are not generally considered to meet this requirement.

At least 24 semester hours of graduate course work, exclusive of credits for dissertation research and beyond course work applied toward the M.S. degree.

The comprehensive examination covers, in depth, at subdivisions of one major field and one subdivision in each of three other major fields. It is also presumed 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 Deposits
- Mineralogy
  - Crystallography
  - Determinative Mineralogy
- Geochronology, Geology, and Geochemistry
  - Crystalline Chemistry and Mineral Chemistry
- Igneous and Metamorphic Petrology
  - Igneous Petrology
  - Metamorphic Petrology
- Aqueous Geochemistry and Thermodynamics
- Stratigraphy
  - Geotechnics
  - Structural Analysis
  - Remote Sensing
- Geophysics
  - Exploration Geophysics
  - Solid-Earth Geophysics
- Rock Properties
- Sedimentary Petrology
  - Sedimentation
  - Sandstone and Carbonate Petrology
- Physical Stratigraphy
- Physical Stratigraphy
- Biostatigraphy
- Depositional Environments
- Sedimentary Petrology
- Sedimentation
- Sandstone and Carbonate Petrology
- Physical Stratigraphy
- Paleontological Studies
Field Trips
Field trips are integral parts of several courses in geology. Weekend geological field trips are frequent. In the city region, the geology is characterized by a layer of glacial drift on a largely Paleozoic sedimentary section a few hundred meters thick, overlaying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geologic sites are available within a few hours' drive. All four Paleozoic glaciations are represented in Iowa and each offers distinctive assemblages and fossil assemblages.

Spring breaks provide time for longer trips available to all geology students. In recent years students have traveled to the Grand Canyon, the Florida Keys, the southern Appalachians, the Big Bend Region of Texas, and the Ozarks. Advanced classes visit Colorado, Ontario, Kansas, Oklahoma, and California.

Courses

Primary Courses for Undergraduates

1. 102 Cooperative Learning in Geology 2.0 hrs.
   Practical experience in one or more phases of geology, will be noted on student's transcript. Prerequisites: C- or better in 101. 2.0 grade point average in geology, consent of instructor.

2. 121 Lectures in Earth History and Resources 2.0 hrs.
   Ancient and modern environments on earth and in space, the processes by which they evolved, evolution of ecosystems, man's role in shaping the earth's surface. Prerequisites: 120 or 126.

3. 121A Lectures in Introduction to Environmental Geology 2.0 hrs.
   Continuation of 121. Not open to students who have taken 121 or 124.

4. 122 Principles of Physical Geology 2.0 hrs.
   Introduction: plate tectonics, processes controlling climate, weathering, erosion, weathering, sediments, basin formation, tectonic processes, and basin formation. Prerequisites: 101.

5. 124 Principles of Physical Geology 2.0 hrs.
   Introduction: plate tectonics, processes controlling climate, weathering, erosion, weathering, sediments, basin formation, tectonic processes, and basin formation. Prerequisites: 101.

6. 126 Introduction to Geology 2.0 hrs.
   Introduction to geology, including: the earth's structure, soil formation, weathering, erosion, and transportation processes. Prerequisites: None.

7. 126A Introduction to Geology 2.0 hrs.
   Introduction to geology, including: the earth's structure, soil formation, weathering, erosion, and transportation processes. Prerequisites: None.

8. 126B Introduction to Geology 2.0 hrs.
   Introduction to geology, including: the earth's structure, soil formation, weathering, erosion, and transportation processes. Prerequisites: None.

Cooperative Activities

The department has a collaborative work with the Iowa Geological Survey and geology students sometimes work on projects for the Survey. The departments of Geology, Geography, Anthropology, Chemistry, Biology, and Zoology cooperate in sharing services, expertise, joint instruction, and equipment.
Primary for Graduates

12:33 Advanced Isotopic Petrology 3 credits
   Petrology, geochemistry, and tectonic and genetic implications of selected isotopic anomalies. In-depth individual research, independent project, major term paper. Prerequisites: 12:29 or consent of instructor.

12:22 Micropetrology 3 credits
   Petrology, taxonomy, and evolution of selected groups of minerals. Prerequisites: 12:17 or 12:51 laboratory, college junior, or consent of instructor.

12:21 Mineral Petrology 3 credits
   May be repeated. Prerequisites: 12:22 and consent of instructor.

12:33 Rock-East Geology Seminar 3 credits
   Discussion of individual topics in rock petrology. May be repeated. Prerequisites: 12:24 and consent of instructor.

12:28 Structural Geology in Sedimentary Environments 3 credits
   Includes laboratory section based on selected readings and laboratory exercises to address current areas of research in sedimentary petrology; topics include both clastic and carbonate rocks, as determined by the interests of the group. Prerequisites: junior or senior, sedimentary petrology, or consent of instructor.

12:22 Advanced Topics in Depositional Environments 3 credits
   Analysis of clastic and carbonate rocks based on interpretation of microfacies and depositional environments. Prerequisite: 12:17 or 12:51 laboratory, junior or senior. Prerequisites: 12:22 and consent of instructor.

12:22 Organic Geochemistry 3 credits
   Study of organic geochemistry, including biologic role of the elements, biologic role of the elements, and biologic role of the elements. Prerequisite: 12:24 or consent of instructor.

12:22 Trace Element Geochemistry 3 credits
   Investigation of trace elements behavior in igneous and metamorphic rocks and associated fluids, emphasizing processes of partitioning between phases and fluids. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Agence Geochemistry 3 credits
   Thermochemical aspects of magmatism, geochemistry of rare earths. Prerequisite: 12:22 and consent of instructor.

12:22 Metamorphic Petrology 3 credits
   Lecture, seminar, and laboratory genera of metamorphic rocks from fundamentals of metamorphic processes, experiment demonstration, and geologic observations. Offered both semesters. Prerequisite: 12:22 or consent of instructor. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Regional Stratigraphy 3 credits
   Seminar covering ancient and modern stratigraphic concepts of the Pliocene, Pleistocene, and Quaternary. Prerequisite: 12:22 and consent of instructor.

12:22 Mineral Deposits and Sedimentation 3 credits
   Analysis of selected Mesozoic and Tertiary basins around the world, with emphasis on exploration strategies in sedimentary basins and petroleum systems of the Americas. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Biogeology 3 credits
   Lecture course on biogeography. Prerequisite: 12:22 or consent of instructor.

12:22 Seminar Geochronology 1-3 credits
   Lecture and discussion of geochronology topics such as the timing of geologic events and the stratigraphic relationships of rock samples. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Gravity and Magnetic Exploration 3 credits
   Field, laboratory, and computer methods of geophysical prospecting. Includes practical field methods, data acquisition, and calculating and interpreting survey data. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Seismic Exploration 3 credits
   Basic techniques, and applications of the seismic methods of geophysical prospecting, data acquisition, and processing, and interpretation. Laboratory may be associated with practical exercises and computer project. Offered alternate years. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Senior Design Project 1-12 credits
   Topics studied in prior courses and current research interests. Prerequisite: 12:22 and 12:24 or consent of instructor.

12:22 Advanced Structural Geology 3 credits
   Survey of techniques used in some subsurface geologic problems, including structural analysis, isometric analysis, lineal analysis, surveying, and seismic stratigraphy. Offered alternate years. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:22 Advanced Structural Geology 3 credits
   Prerequisite: 12:22 or consent of instructor. Prerequisite: 12:22 or consent of instructor.

12:22 Rock Magnetism and Paleomagnetism 3 credits
   Stratigraphy, and paleomagnetism, and field techniques of paleomagnetism. Prerequisites: 12:22 and 12:24 or consent of instructor.

12:61 Research Geology Remote Sensing 1-12 credits
   Prerequisite: 12:31 or consent of instructor. May be repeated. Prerequisites: 12:31 or consent of instructor.

Undergraduate Program

Students majoring in German choose one of two major tracks: the humanities track or the applied German track. The humanities track enlists the student to concentrate in German language, literature, and culture, both past and present. It is recommended for students who wish to explore the German world of ideas and their influence through the ages. This track is required for students who plan to pursue graduate study in German and those who plan to complete the undergraduate teaching major in German in conjunction with the College of Education. The applied German track is designed to give the student practical skills and 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 coursework in the department, beyond the basic program. The following course sequences, or their equivalents, are required for students who plan to become a major in German with no previous experience with the German language.

12:51 Research Geology: Geophysical and Remote Sensing
   Geophysical and Remote Sensing
   May be repeated.

12:51 Research Geology: Geophysical and Remote Sensing
   Geophysical and Remote Sensing
   May be repeated.

12:51 Research Geology: Geophysical and Remote Sensing
   Geophysical and Remote Sensing
   May be repeated.

12:51 Research Geology: Geophysical and Remote Sensing
   Geophysical and Remote Sensing
   May be repeated.
Basic Program
13:11 First-Semester German 4 s.h.
13:12 Second-Semester German 4 s.h.
13:21 Third-Semester German 3 s.h.
13:22 Fourth-Semester German 3 s.h.
13:23 Elementary Composition and Reading 3 s.h.
13:03 Intermediate German and Conversation 3 s.h.

Humanities Track
Third Year
13:101 Introduction to Modern German Literature 3 s.h.
13:102 Introduction to Modern German Literature II 3 s.h.
13:103 Intermediate Composition and Conversation 3 s.h.
13:104 Intermediate Composition and Conversation 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.
Students who intend to go on for an advanced degree are encouraged to add 13:117 German Phonology (3 semester hours) to the above.

Applied German Track
Third Year
13:103 Intermediate Composition and Conversation 3 s.h.
13:104 Intermediate Composition and Conversation 3 s.h.
13:106 Principles and Techniques of Translation 3 s.h.
13:107 Translation: Projects and Colloquium 2-4 s.h.
13:114 Business German or 13:115 Contemporary German Civilization 3 s.h.
Fourth Year
13:113 Advanced Composition and Conversation 3 s.h.
13:114 Business German or 13:115 Contemporary German Civilization 3 s.h.

The student in applied German must also 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 is expected to complete a full first major in a subject in which he or she has no such obvious advantage over his or her peers.

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 Intermediate Composition and Conversation 3 s.h.
13:104 Intermediate Composition and Conversation 3 s.h.
13:116 Advanced Composition and Conversation 3 s.h.

Honors in German
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 3.6 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, and 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 may also benefit from our Computer-Assisted Instruction program.

An extensive collection of works and periodicals in the University Library facilitates research in the major areas of German literature and Germanic linguistics at all levels of study. The Foreign Language House in Westtown Residence Hall is available to undergraduate and graduate students as an on-campus housing option.

Foreign Study
The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three Iowa regents universities, this program is open to students in all disciplines.
A three-week session is conducted at St. Radegund, near Graz, Austria. Instruction in German language and culture is provided at appropriate levels. A second four-week session is held in Vienna, where faculty of the International University at the University of Vienna conduct morning classes daily, again on several levels. An Independent Travel period is scheduled during the program.

To participate, the student must be admitted to one of the three Iowa regents universities for the summer session. Applicants should have a good 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 graduate 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.

Master of Arts with Thesis
Graduate students of German who demonstrate an interest and potential for productive scholarship and who plan to continue to the doctorate should elect the master's degree program with thesis. The thesis program requires a minimum of 28 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 courses or equivalents in the department's undergraduate program, he or she may elect to take the courses 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 related 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 the approval of the faculty.
Before the M.A. exam can be administered—after acceptance of the M.A. thesis—the candidate must demonstrate competence in a foreign language other than German, at a level equivalent to two years of college study or four years of high school study, with a grade of B or higher.

Master of Arts without Thesis
A graduate student preparing for secondary school teaching, government service, translation, etc., may elect the master's degree program without thesis. This program requires a minimum of 33 semester hours of course work and is considered a terminal degree.
The course requirements outlined for the M.A. with thesis apply to candidates for the M.A. without thesis, however, students in the latter program should, with the approval of the graduate adviser, select those courses which will best prepare them for their chosen careers.

Doctor of Philosophy

The Ph.D. degree is awarded upon the satisfactory completion of a minimum of 72 semester hours of graduate credit, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog), with a concentration in either classical linguistics or German literature.

Credit received toward the M.A. degree is normally applied to the Ph.D. The student may earn up to 12 additional semester-hours of credit for satisfactory completion of the Ph.D. dissertation.

Graduate courses outside the department in related subjects may be counted toward the degree with the approval of the graduate adviser.

A candidate concentrating in literature must demonstrate a knowledge of French and of another language which has a higher degree of literativeness and which is not a cognate language of German. The candidate must have completed at least two years of foreign language study, with a grade of 8 or higher, or through testing. The student must meet the language requirements before taking the comprehensive exams.

Financial Aid

Teaching assistantships, research assistantships, graduate fellowships, and tuition scholarships are available within the special concentration of German literature. The department awards the Wilson and the Funka prizes to students of distinction.

Courses

Primarily for Undergraduates

15000 Cooperative Education Internship 0 s.h.
15111 First-Year Seminar 3 s.h.
15112 First-Year Seminar (continuation) 3 s.h.
15121 Second-Year Seminar 3 s.h.
15122 Second-Year Seminar (continuation) 3 s.h.
15123 Third-Year Seminar 3 s.h.
15124 Fourth-Year Seminar 3 s.h.
15200 German Literature 3 s.h.
15201 German Literature (second semester) 2 s.h.
15202 German Literature (third semester) 2 s.h.
15203 German Literature (fourth semester) 2 s.h.
15300 German Literature 2 s.h.
15301 History of German Literature 1 s.h.
15302 History of German Literature 1 s.h.
15303 History of German Literature 1 s.h.
15400 German Literature 2 s.h.
15401 German Literature 2 s.h.
15402 German Literature 2 s.h.
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15466 German Literature 2 s.h.
Global Studies/LIBERAL ARTS

13109 Contemporary German Literature 3 s.h.
Contemporary literature of Weimar and Nazi Germany, Austro-German. Emphasis: For advanced undergraduate and graduate students. Prerequisite: knowledge of German. Same as 33104.

13114 Human Nature and the Impact of Sin 3 s.h.
Interdisciplinary discussion course moderated by two instructors. Studies the relationship of human beings to God. Prerequisites: English 101 or 9101, or knowledge of German. Same as 33105.

13119 Opera as Drama 3 s.h.
Lyrical and comic operas as autonomous and interdependent works in the culture of the late 18th century. Required to have a working knowledge of opera in order to attend, but a knowledge of opera or drama is not required as 33217.

13212 Leaving 3 s.h.
Concentration on his major themes, which may be read in English translation.

13213 The last Tibetian in Western Civilization 3 s.h.
Development of Fascist theme in world literature, beginning with earliest, the historical Past, the Fascist state, the future, and the symbols of Fascism. Emphasis: cultural, intellectual, and political developments in Fascist Italy. Required knowledge of German. Same as 33213.

13105 Novas Region in Germanos 3 s.h.
Language Courses for Graduate Nonmajors

13117 freshman Elementary German 4 s.h.
Instructor only. Description same as for 1313.

13118 sophomore Second Year German 4 s.h.
Graduates only. Description same as for 1312.

For Graduates

13315 Advanced Studies 6 s.h.
Special problems of German literature and linguistic open to graduate majors in German.

13317 German Prospector 7 s.h.
Special problem of graduate study is to study German literature and Germanic linguistics, exploring bibliographies, methods of research, literary histories, and writing, and other special problems.

13212 The Novel 3 s.h.
May be repeated.

13217 German Poetry 3 s.h.
May be repeated.

13218 The Drama 3 s.h.
May be repeated.

13222 History of the German Language 3 s.h.
Same as 13232.

13223 Middle High German 3 s.h.
Primarily for students concentrating in linguistics. Same as 13233.

13224 Middle High German Literature 3 s.h.
Primarily for students concentrating in linguistics. Same as 13232.

13240 Old High German 3 s.h.
Same as 13230.

13247 Gothic 3 s.h.
Same as 13237.

13248 History of the Scandinavian Languages 3 s.h.
Advanced readings in linguistic works in German, Scandinavian, and Norwegian. Same as 13238.

13271 Early German Literature 3 s.h.
German literary development in Middle High German Latinus.

13277 Great Works of the Renaissance and Humanism 3 s.h.

13277 German Literature of the Baroque 3 s.h.

13278 The Age of Enlightenment 3 s.h.
Smirn and Stress (Oliver, Isler, Kingsley, Dean) and the Medieval literature (1100-1500) of Germany and the Netherlands, the interdependence of the movements and their theoretical basis. Prerequisite: Introductory to literature in connection with representative works of the period.

13278 German Literature 3 s.h.

13278 German Literature 3 s.h.

13278 Medieval, Renaissance, and Enlightenment in German Literature 3 s.h.

13278 Special Topics in German Literature 3 s.h.
Open to graduate majors in German. May be repeated.

13278 Baudelaire's Théories 3 s.h.

13278 Pre-Critical Regularization 3 s.h.

13278 Seminar in Early German Literature 3 s.h.
May be repeated.

13278 Seminar in German Literature of the Eighteenth Century 3 s.h.
May be repeated.

13278 Seminar in German Literature of the Twentieth Century 3 s.h.
May be repeated.

13278 German Poetry of the Twentieth Century 3 s.h.

13278 Theory of Literature 3 s.h.

13278 M.D. Dissertation 3 s.h.

Global Studies

Qualifying exam: James McAlpine (Religion)
Committee members: Steve Ann (Office of International Education and Services), Robert E. Basset (Religion), Michael C. (Religion), Mary Ann (Religion), Patricia (Religion), Christopher (Religion), and Art (Religion), Donald Spooner (History) Diane Spooner (History) Faye Spooner (History)

The Global Studies Program at The University of Iowa is designed to provide undergraduate students multidisciplinary study of major contemporary, interrelated global issues concerned with war, peace, human security, development, environmental concerns and global resources, and cross-cultural understanding.

Graduates majoring in any department, in any college, are eligible to enroll in the program. In brief, a student will complete all requirements for a departmental major and, in addition, the requirements of the Global Studies Program. Students completing the requirements of the program are awarded a certificate of Global Studies of the time they receive their bachelor's degrees. Students pursuing the certificate in Global Studies may also specify Global Studies as their minor. Candidates for the Bachelor of General Studies (B.G.S.) degree may also be admitted to the program. However, because B.G.S. candidates have no departmental concentration, they will require very close academic advising by the program's faculty committee.

All students enrolled in the program, including B.G.S. students, are required to complete (or have the equivalent of) two years' study of a foreign language and are encouraged to go beyond this minimal requirement. Each student completing the B.G.S. program will be awarded a certificate, and the concentration in global studies will be noted on his or her transcript.

The Global Studies Program requires the completion, with at least a 2.0 grade-point average, of 24 semester hours of approved courses. Distribution as follows:

Introductory Course

The student normally takes this course, 47:1 Global Interdependence and Human Security, in the freshman or sophomore year. It is designed to provide an introduction to the four basic problem areas of the Global Studies Program, basic information relative to each of the problems, clarification of their inter-connection, and identification of some current efforts to deal with them.

Multidisciplinary Senior Seminar

This course, 47:180 Global Studies Seminar, is offered at least once a year and is required of all students in the program, normally in their senior year. It is designed to provide an in-depth exploration of a particular global problem or geographic area. Global content will vary from year to year, but in any case the course is multidisciplinary and will feature distinguished speakers from off and campus.

Global Studies Courses

In addition to the Introductory Course and the Senior Seminar, the student elects one course (three semester hours) under each heading, and two additional courses (six semester hours) under one of the headings, for a total of six courses (18 semester hours). These courses are mainly open only to regular offerings by University departments, though several courses listed below are offered or listed by the Global Studies Program. (See the list of Global Studies courses below).

I. War, Peace, and Security

This component of the Global Studies Program deals with the use of armed force for the pursuit of political ends on a continuum ranging from potential global war to the individual act of terrorism. The various approaches will include causes, effects, limitation, and resolution of violence in the contemporary setting.

All students must take:

30:164 Military Affairs

or

16:149 War and Society

Students who elect to take courses in this area would, in addition, take one of the following:

16:520 The Future of Peace

or

16:591 The Future of War
III. 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. All students must take either:
42:19 Contemporary Environmental Issues
42:124 Introduction to Global Environment
Students who elect to take three courses in this area would, in addition, take any two of the following courses:
42:19 Contemporary Environmental Issues
42:123 Geography of Natural Resources
42:124 Introduction to Global Environment
42:191 Energy in Contemporary Society
37:75 A Planet in Crisis (same as 12:75)
34:174 World Population Problems

IV. Cross-Cultural Understanding
Global issues will require for their analysis and solution persons educated to understand that 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 it is risky to accept as absolutes, without careful examination, the perceptions, values, and beliefs of any one society or culture.

The goals of this program component are to highlight cross-cultural differences themselves as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to help 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 these bear on the analysis of global problems and proposals for their amelioration.

Two options are available for fulfilling the requirements of this program component:
Option 1
Students electing Option 1 must take:
113:12 Introduction to the Study of Culture and Society
Students who elect, through Option 1, to take three courses in this program component must also take two additional courses from the following list:
42:197 World Futures
30:155 Human Rights
B1:193 Human Rights in the World Community: Problems of Law and Policy (emphasizes enforcement)

65:166 The Political Economy of Development
19:156 Comparative Communication Systems
16:191 Contemporary Asia: News Colloquium (same as 10:150)
42:180 Comparative Social Policy
47:7 Contemporary Africa
113:3 Introduction to the Study of International Relations
113:10 Anthropology and Contemporary World Problems
113:14 Language and Human Behavior
113:158 Women's Roles: A Cross-Cultural Perspective
113:172 Language and Culture
113:181 Race, Ethnicity, and International Relations

Option 2
Students electing Option 2 may fulfill the requirements of this program component by taking three courses in the history and culture of one of the principal world geographical areas. The selection of the three courses is subject to the approval of the program's faculty committee. It is especially desirable for students electing this option to fulfill the program's language requirement through the study of a language of the geographical area. In addition to supervising its academic program, the Global Studies Committee organizes talks and conferences of interest to the general public as well as students.

Courses

47:1 Qatar, Palestine, and Human Survival
3 s.h.
Introduction to the four basic problem areas of the Global Studies Program: basic information relevant to each of the problem areas, critical evaluation of relevant works, and identification of current efforts to deal with them.

47:2 Contemporary Asia
2 s.h.
Interdisciplinary survey of the political, economic, and social aspects of contemporary Asia.

47:5 African Economics
3 s.h.
Analysis of contemporary African affairs from an interdisciplinary perspective, using foreign and domestic data and periodicals.

47:6 Global Economics Seminar
1 s.h.
In-depth exploration of a particular global problem or geographic area. Student work load may vary from year to year, but in any case the approach will be interdisciplinary, and the topics covered will vary. Participation by students is expected; students will work under the direction of the Global Studies Committee.

Greek
See "Classics."
History

Department chair: Suzanne A. Nehrke
Faculty: Lawrence E. Gelfen, Ralph E. Resse, Suzanne A. Goltzsch, Charles A. Hair, Ellis W. Huyck, John B. Hemenway, Henry O. Haverty, Sallie V. Jones, Linda A. Kester, Lawrence Lattke, Donald McDowell, Jerrod Pelzner, Malcolm J. Rohrbough, David N. Shreiner, Ann B. Barker, Gerda Sualat-

The purpose of the Department of History is to increase knowledge of human experience and to provide students with opportunities to gain information about and learn methods for understanding their world in the 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, Afro-American studies, Asian studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history go into law, business, public service, or journalism. Many plan further training in history, law, religion, library or archival science. A major in history includes work in other fields that will illuminate and expand the meaning of history courses as well as introduction to the undergraduate to different forms of information and approaches to understanding the ways societies and cultures work. It is, for example, strongly recommended that the College of Liberal Arts degree requirement in a foreign language be met by selecting a language which fits in with the major student's history interests.

The general major is for students with a general liberal arts program. The program requirements are:

A minimum of 24 semester hours in courses offered by the Department of History numbered 16:50 or higher, of which at least 12 semester hours must be in non-U.S. history courses. This limitation is imposed to assure the student's history courses. This limitation is imposed to ensure familiarity with the history of at least one other society besides his own.

Three semester hours in 16:51 Colloquium for History Majors. A colloquium consists of a small number of students collectively studying problems in ways that give training and experience in group discussion, analysis, and criticism. It is best taken after the student has finished a number of other History courses.

Of the 24 semester hours of history required for the major, 12 including three hours of colloquium must be taken in residence at The University of Iowa.

A minimum of 16 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio courses), geography, literature (including workshop courses), philosophy, political science, psychology, religion, and sociology, or a related major in one of those areas. Courses taken to satisfy requirements in general education will not be counted toward the related-areas requirement.

Students majoring in history may waive three semester hours of the general education requirement in historical perspective. They may not receive credit toward this requirement by taking any of the following courses taught by members of the history faculty: 16:3-4 Problems in Human History, 16:1 Western Civilization to 1750, 16:2 Western Civilization Since 1750, and 16:3-4 Civilizations of Asia. Nor may any of these courses 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 teacher's certificate must choose an area of concentration in history, this will affect the kind of field experience they can gain.

American History Concentration

Courses in U.S. History 30 s.h. (including 16:51 Colloquium for History Majors)

Courses in related areas 24 s.h.

Students must take at least 12 semester hours of course work in each of two related-areas chosen from among the following five: economics, geography, world history (non-U.S.), philosophy, or sociology.

Students must also meet a special requirement in early European history by taking one of 16:1, 16:107, or 16:110 (three semester hours). This course may not be the course that satisfies the related area requirement in world history if that is one of the two areas chosen.

World History Concentration

Courses in non-U.S. History 30 s.h. (including 16:51 Colloquium for History Majors and one of 16:1, or 16:107, 16:110) 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, American history, political science, sociology. Course work in economics, political science, or sociology which 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.

Students seeking the major in history must also complete the professional courses in the College of Education which are required for teacher certification (a total of 27 semester hours). They should consult an advisor in social studies education (see the College of Education section of the Catalog). Honors

The honors major is for students of superior ability who want a flexible program enabling them to pursue special interests and enjoy the experience of individual research. To undertake the honors major in history, the student must be admitted to the College of Liberal Arts Honors Program by the director of that program, and to the honors program in history by the department. Application should be made by the beginning of the junior year, but may be made earlier, and in any case, must be made not later than the honors major leader to the Bachelor of Arts degree in history. Requirements are:

A minimum of 24 semester hours in courses offered by the Department of History of which at least 12 must be in U.S. history; minimum of 16 to 18 semester hours in related courses (See General Major in History); at least nine semester-hours in the department's honors offerings, which may include up to six semester hours of honors essay credit.

A defense of an honors essay is required.

Honors credits may be obtained in honors seminar-honors tutorial, and supervised research for honors the honors seminar fulfills the colloquium requirement of the general major.

The honors essay should be a 30 to 40 page paper based on some research in primary sources. A committee of three faculty members will hear a defense of the essay in the 12th week of the student's test semester.
Graduate Programs

The graduate programs in history prepare students to teach in high schools or colleges, and for such occupations as publishing, commercial research, and government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, or historical site preparation and display. Some students enter the program to pursue advanced degrees in both law and history (see the "College of Law" section of the Catalog). Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be 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 for the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of credit in the history department, including at least two seminars or one seminar and one readings course. One 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 second division, including either a seminar or a readings course.

The essay or the major division must be based on original research and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay will normally begin in the seminar in the major division and be continued with 1629 individual Study: Graduate, in which rewriting will be a major part of the work of the supervisor. In exceptional cases where the essay completed in seminar is judged to be of outstanding quality, other courses may be substituted for 1629.

Students who complete the M.A. under the alternative plan may not become candidates for the doctorate in history. The M.A. candidate must earn at least 30 semester hours of graduate credit, 24 semester hours of which must be in history. Of these, at least 11 must be in one division, and must include at least one readings or seminar course.

The program must also include at least six semester hours in each of two other divisions in history, or six hours in one other division in history and 8 hours in a related department. These hours must include at least one readings or seminar course in history.

After completing these requirements, or in 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 upon the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the general requirements for admission to the Graduate College (see the "Graduate College" section of the Catalog) and submit a specimen of their writing, such as a seminar paper or an M.A. thesis. They must take a research seminar during their first two semesters in residence at Iowa.

The candidate must earn at least 72 semester hours of credit, including credit for work which toward the master's degree. The 72 semester hours must include at least 32 semester hours in courses in 200-level courses in history, apart from thesis credit. At least 20 of these 32 hours must be completed before the student takes the comprehensive examinations, and at least 20 of these 32 hours must be completed at The University of Iowa. Research seminars taken at the M.A. level may be counted toward this 32-hour requirement. The candidate must also earn two semester hours of credit in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph.D., but the supervisor may require the candidate to demonstrate a reading knowledge of one or more language(s) and proficiency in the use of other tools of study. The candidate may not complete the comprehensive examination until these requirements have been met.

The comprehensive examinations and the dissertation will cover four distinct fields, at least three of which must be in history. The fields in history must be chosen from at least two of these divisions:

- The Ancient World
- Medieval Europe
- Europe, including Great Britain, 1500 to 1615
- Europe, including Great Britain, 1615 to Present
- Russia and the Soviet Union
- United States History
- Latin American History
- History of China
- History of Japan
- History of India
- Economic History

The committee may define and delimit the individual fields for examination. It may also set, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form of combination of these or other forms that the committee deems suitable. The oral portion of the examination will focus on issues and problems arising from the examination papers.

Graduate Admission

All applicants for admission, whether for the M.A. or the Ph.D. program, must meet the general requirements for admission to the Graduate College. In addition, they must submit a specimen of their writing—such as a term paper, a master's thesis—or an M.A. thesis to the history department. All applications for graduate awards are due by February 10 for the succeeding year. Applications for admission are due April 10 and November 10 for the following semesters. An applicant must take the Graduate Record Examination (GRE) Aptitude Test in order to be considered for admission. An undergraduate history major is not required for admission to the graduate program.

Guide to Graduate Study

Further information on graduate study is contained in the department's guide to Graduate Study, sent to all applicants for admission. The Guide is revised every spring to include the latest changes in the faculty, the courses to be offered the following year, and the research interests of the members of the faculty, as well as designed to emphasize study beyond advanced degrees and other information of interest to prospective students.

Special Facilities

The University Library is strong in all aspects of U.S. History. Among the Henry A. Wallace papers and related collections, the Library has extensive materials. In European history, the special strengths are in French and English materials. The Iowa State Historical Society in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional research materials of great value.

Courses

Courses numbered 161 through 169 are ordinarily open to freshmen to satisfy the General Education Requirements in Historical Perspectives. 1620, 1631, 1642, 1649, and 1690 are open to freshmen. 1651 and 1699-104 are not open to freshmen. Other courses numbered below 200 are open to freshmen provided they have already satisfied the general education requirements in the history objectives. Most courses numbered below 200 are offered as occasion demands.

Courses numbered 200 and above are offered as occasion demands.
4:10-14 Principles of Chemistry I- II
4:15 Principles of Chemistry Laboratory
4:121 Organic Chemistry I
4:141 Organic Chemistry Laboratory
61:157 General Microbiology
72:157 Human Microbiology
99:110 Biochemistry

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis on a specific dietetic program requires:
17:101 Food Study
17:102 Food Study Laboratory
17:133 Meal Management
17:134 Experimental Food I
17:136 Food Service Systems Management
17:137 Food Service Systems Administration
17:144 Human Nutrition
17:146 Nutrition Laboratory
17:147 Diet Therapy
4:19:14 Principles of Chemistry I-II

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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 program follows minimum academic requirements of the American Dietetic Association Plan IV. All students applying for internships should have their progress currently selected the first semester of the senior year.

Home Economics Education

Home Economics education leads to certification and vocational approval in home economics. Students are prepared with subject matter and professional competencies required for teaching home economics in vocational and professional secondary schools, for working as educators with organizations, business, industry, the home economics extension service, and other agencies, for teaching in nonschool settings, and for graduate study. Required courses for this concentration are:

17:31 Introductory Food Study
17:131-132 Food Study, Food Study Laboratory
17:112 Personal Financial Management
17:113 Marriage and Family Interaction
17:114 Parent-Child Relationships
17:121 Curriculum: Home Economics
17:128 Education: Home Economics
17:133 Meal Management
17:165 Housing: Planning and Structural Aspects
17:106 Housing: Social and Psychological Aspects
17:170 Custom and Contemporary Tailoring
17:171 Fitting Problems and Flat Pattern Design
18:1 Elements of Art
18:2 Elements of Art
4:11 Principles of Economics
4:11 Elements of Economics
3:1:1 Elementary Psychology
3:4:1 Introduction to Sociology Principles
3 s.h.
2-3 s.h.
2-3 s.h.
4:1 s.h.
3 s.h.
4 s.h.
3 s.h.
2 s.h.
3 s.h.
2-3 s.h.
2 s.h.

In addition, students must complete the coursework generally required for teacher certification. The methodology course required in home economics education is 72:125 Methods: Home Economics (3 semester hours).

In addition to the general requirements to be eligible for student teaching (see the "College of Education" section of the Catalog), the student in home economics education must have an overall grade-point average of 2.5, must have completed 28 semester hours of home economics courses with a C grade-point average in that work, and must have received no grade less than "C" in the home economics courses required for home economics endorsement and vocational approval.

For the General requirements to be eligible for student teaching and for certification, see the "College of Education" and "Secondary Education" sections of the Catalog. Students are required to have 400 hours of paid employment in a home economics-related occupation (e.g., example, food service, day care center, retailing) for certification. This work experience can be through 17:00 Cooperative Education Internship or through certification of work experience.

Electives should be selected from education, journalism and mass communication, psychology, sociology, communication and theatre arts.

Interior Design, Textile Design, Housing

This program requires students to develop understanding and appreciation of concepts unique to design by drawing upon the humanities, the arts, and science.

A concentration in interior design, textile design, and housing prepares students to pursue careers in the following areas: residential and commercial interior design, space planning, design consulting, merchandising, fabric design, and weaving. The requirements for this concentration are:

17:51 Interior Design
17:53 Design Drawing
17:54 Interior Design: Principles and Practices
17:150 Survey of Historic Interiors
17:160 Textile Design: Printing and Dyeing
17:165 Housing: Planning and Structural Aspects

This program is divided:
1:12 Understanding the Visual Arts
11:5 Western Art and Culture before 1400
11:6 Western Art and Culture after 1400
11:16 Introduction to Asian Art
18:1 Elements of Art
18:2 Elements of Art
An approved two-dimensional studio art course

An approved three-dimensional studio art course
4:1 Principles of Economics
4:2 Principles of Economics
One of the following, depending on program emphasis:
17:153 Interior Design: Principles and Practices II
17:162 Textile Design: Weaving
17:164 Textile Design: Forms and Fibers
17:166 Housing: Social and Psychological Aspects

Also, one other interior design, textile design, housing course (selected according to program emphasis)

Electives from home economics, business education, urban and regional planning, art history, studio art, social sciences, and theatre are recommended.
Textiles and Clothing

Students concentrating in textiles and clothing develop competencies in three areas: textiles, clothing, and merchandising.

This program prepares students for careers in merchandising and related areas. Concentration in fashion merchandising requires:

17:70 Introductory Clothing Construction 3 s.h.
17:72 Apparel, Fashion, and Selection 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
11:171 Fitting Problems and Flat Pattern Design 3 s.h.
17:173 Fashion Merchandising 3 s.h.
17:174 Merchandising Communications 3 s.h.

A course in communications

17:180 Textile Technology and Analysis 3 s.h.
17:181 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:183 Textiles and Apparel Economics 3 s.h.
4:7-8 General Chemistry-I/II 6 s.h.
A natural science-laboratory course 2-4 s.h.
64:1 Introduction to Financial Accounting 3 s.h.
64:1 Principles of Economics 4 s.h.
64:2 Principles of Economics 4 s.h.
68:100 Introduction to Marketing 3 s.h.
68:100 Consumer Behavior 3 s.h.
A course in computer science

Courses in business administration, computer science, journalism and mass communication, communication and theatre arts, and home economics are recommended as electives.

Concentration in textiles technology requires:

17:70 Introductory Clothing Construction 3 s.h.
17:72 Apparel, Fashion, and Selection 3 s.h.
17:180 Textile Technology and Analysis 3 s.h.
17:181 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:183 Textiles and Apparel Economics 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
17:185 Historic Textiles and Apparel 3 s.h.
4:7-8 General Chemistry-I/II 6 s.h.
A natural science-laboratory course 2-4 s.h.
18:1 Principles of Economics 4 s.h.
Two courses in statistics 6 s.h.
A course in computer science 3 s.h.
Electives from computer science, statistics, engineering, psychology, chemistry, economics, and home economics are recommended.

Bachelor of Science

The B.S. programs are recommended for students who want deeper knowledge of the topics studied in the B.A. degree plus general education coursework.

For those interested in customizing their major, the B.S. degree requires the following coursework:

22:3 Mathematical Techniques-I/II 5 s.h.
22:5 20 Elementary Functions 3 s.h.
22:5 25 Calculus-I 4 s.h.
29:11-12 College Physics 5 s.h.
4:130 Physical Chemistry for the Life Sciences 3 s.h.
or
99:143 Experimental Biochemistry 4 s.h.

For this program, enrollment in 99:100 and 99:130 is recommended in place of 99:110

Home Economics Education

Graduates can enter the careers described for the B.A. degree in home economics education.

Graduates are prepared for employment in home economics education, home economics research, or homemaking.

A course in natural science

17:140 Textile Construction 3 s.h.
17:185 Fashion and Selection 3 s.h.
A course in computer science

Courses in business administration, computer science, journalism and mass communication, communication and theatre arts, and home economics are recommended as electives.

Concentration in textiles technology requires:

17:70 Introductory Clothing Construction 3 s.h.
17:72 Apparel, Fashion, and Selection 3 s.h.
17:180 Textile Technology and Analysis 3 s.h.
17:181 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:183 Textiles and Apparel Economics 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
or
17:185 Historic Textiles and Apparel 3 s.h.
4:7-8 General Chemistry-I/II 6 s.h.
A natural science-laboratory course 2-4 s.h.
18:1 Principles of Economics 4 s.h.
Two courses in statistics 6 s.h.
A course in computer science 3 s.h.
Electives from computer science, statistics, engineering, psychology, chemistry, economics, and home economics are recommended.

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 program. May not meet the department’s cooperative education requirements. Students register for 11:180 Cooperative Education Internship at the time of their work experience and for 17:180 Home Economics Internship during the subsequent semester.

Honors

To be eligible for honors, the student must have junior standing, 30 semester hours in residence at the University, an overall cumulative grade-point average of 3.2 or above, a grade-point average of 3.2 in all home economics courses, and at least 12 semester hours completed in home economics. Honors work consists of 17:181 Honors Seminar: Home Economics and 17:192 Honors Problems: Home Economics, in which students do creative work or a research project. A written report or honors thesis and an oral examination are required.

Graduate Programs

The demand for well-qualified professional home economists exceeds the number of graduates with advanced degrees. The master’s degree may qualify for positions in colleges, secondary schools, business, industry, and government.

The graduate programs are designed to provide a major major in food and nutrition; home economics education; interior design, textiles, housing, and textiles and clothing.

The department offers both the thesis and nonthesis options. The thesis option is recommended for students preparing for teaching and research in colleges and universities, for positions in industry, and for continued study beyond the master’s degree. The thesis option permits more intensive experience in research procedures or the opportunity for extended creative work. The thesis may be undertaken in the department, or in cooperation with related departments or colleges.

To be admitted unconditionally, the student must have an overall grade-point average of 2.8, with 3.0 in the area which is to be the major area 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.
Master's Programs

For either the Master of Arts or Master of Science degree, students must complete a minimum of 30 semester hours of graduate work with a thesis, or 28 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. A minimum grade of B or better must be maintained in all courses taken for credit toward the degree. Students who lack required background courses will be required to complete these courses early in their programs; these courses will not apply to the student's graduate program. The designation of the degree, M.A. or M.S., depends on the area of major work.

All students in the M.A. and M.S. programs are required to complete 17,290 Seminar: Home Economics Research. Those in the thesis option also complete 17,291 Thesis.

Family Development
The graduate student in this program gains both psychological and sociological perspectives in human development and family relationships. The plan of study may emphasize either human development, family relationships, aging studies, or family life education. Courses in education, psychology, sociology, and social work supplement offerings in home economics. The graduate student should have an adequate background in social science. Graduates work with agencies concerned with the family or prepare for college and university teaching. Required core courses and family development concentration are:

17,211 Individual and Family Development Life Cycle 3 s.h.
17,212 Theory and Research in Family and Child Development 3 s.h.
17,219 Research Problems in Family and Child Development 1-3 s.h.
17,290 Seminar: Home Economics Research 2 s.h.
One course in statistics 3 s.h.
A course from at least two of the following core content areas:
Child development
Human sexuality
Family economics/consumer issues
Aging

Family and Nutrition
Graduate work in this program may emphasize food, nutrition, or nutrition education. Graduates qualify for positions in educational institutions. They also qualify for government, business, and industrial jobs that include such positions as nutritionist, dietitian, extension specialist, nutrition research specialist, field service manager, specialist, test kitchen home economist, food and nutrition educational material writer, food columnist, school lunch director, or food service manager.

Applicants need background courses in food, nutrition, food service systems, general and organic chemistry, mathematics, physiology, and microbiology.

Courses required for the M.S. degree with specialization in food are:
17,144-155 Experimental Food I-IV 8 s.h.
17,238 Seminar: Food 2 s.h.
17,239 Research: Problems in Food and Nutrition 2-4 s.h.
17,241 Seminar: Nutrition 2 s.h.
17,290 Seminar: Home Economics Research 2 s.h.
99,120 The Chemistry of Biologic Materials 3 s.h.
99,130 Metabolism 3 s.h.
81,157 General Microbiology 3 s.h.
A course in statistics 3 s.h.

Courses required for the M.S. degree with specialization in nutrition are:
17,134 Experimental Food I 3 s.h.
17,145 Advanced Nutrition 3 s.h.
17,146 Nutrition Laboratory 2 s.h.
17,238 Seminar: Food 2 s.h.
17,239 Research: Problems in Food and Nutrition 2-4 s.h.
17,241 Seminar: Nutrition 2 s.h.
17,290 Seminar: Home Economics Research 2 s.h.
99,120 The Chemistry of Biologic Materials 3 s.h.
99,130 Metabolism 3 s.h.
A course in statistics 3 s.h.
Courses required for the M.S. degree with specialization in nutrition education are:
17,120 Methods: Home Economics 3 s.h.
(courses, depending on professional goal)
17,145 Advanced Nutrition 3 s.h.
17,146 Nutrition Laboratory 2 s.h.
17,239 Research: Problems in Food and Nutrition 2-4 s.h.
17,241 Seminar: Nutrition 2 s.h.
17,290 Seminar: Home Economics Research 2 s.h.

Home Economics Education
The graduate student's program in Home economics education may be planned for specialization in one area of home economics or for breadth in the whole of home economics. Graduates are prepared for positions in educational institutions at all levels, home economics extension service, social agencies, and business.

Applicants must have completed requirements for a bachelor's certificate. At least two of the courses outside the department in the thesis option and three in the nonthesis option must be from the same department.

The program's course requirements are:
17,293 Seminar: Readings in Home Economics Education 2 s.h.
17,299 Research Problems: Home Economics Education 2-4 s.h.
17,290 Seminar: Home Economics Education 2 s.h.
A course in statistics 3 s.h.
An interdisciplinary home economics course 2-3 s.h.

Interior Design, Textile Design, Housing

Graduate study in interior design, textile design, housing, may be planned as a specialization in interior design or textile design or as a more general program including a wider variety of courses. Applicants to this program must present a portfolio, which emphasizes the specialization the student intends to pursue, prior to admission.

A variety of career opportunities are available to the M.A. graduate in interior design, textile design, housing. These include interior design, interior design, textile design, historic preservation and restoration, and positions in business and industry. Required courses (depending on previous coursework) are:
17,250 Seminar: Design and Housing 5 s.h.
17,290 Seminar: Home Economics Research 2 s.h.
Courses for interior design specialization:
17,153 Interior Design: Principles and Practices I 3 s.h.
17,154 Interior Design: Principles and Practices II 3 s.h.
17,155 Survey of Historic Interiors 4 s.h.
17,255 Survey of Modern Interiors 2 s.h.
17,259 Research: Problems in Interior Design and Housing 2-4 s.h.
One course in art history 3 s.h.
One course in housing 3 s.h.
One course in studio art 3 s.h.
Courses for textile design specialization:
17,156 Survey of Modern Interiors 2 s.h.
or
17,160 Historic Textiles and Apparel 3 s.h.
17,160 Textile Design: Printing and Dyeing 3 s.h.
17,162 Textile Design: Weaving 3 s.h.
17,164 Textile Design: Form and Fibers 3 s.h.
17,181 Textile Finishing: Dyeing and Detergency 1 s.h.
17,269 Advanced Studio Problems in 4 s.h.
Textile Design 4 s.h.
Another course in textile design 3 s.h.
Two art history courses 6 s.h.
Two studio art courses 6 s.h.

Textiles and Clothing

Graduate students in this program may specialize in textiles, clothing, or merchandising.

This program prepares students for careers in merchandising, textile research, teaching, extension service, and communication. Applicants need
background courses in textiles, clothing, and chemistry. Courses required for the textiles and clothing concentration are:

11/276 Research: Problems in Clothing
12/286 Research: Problems in Textiles
12/290 Seminar: Home Economics Research 3 sh.
A course in statistics 3 sh.
Additional courses in textiles and clothing are required, based upon the student's educational background, professional needs, and career goals.

Master of Arts in Teaching
The M.A. program is designed for students with an undergraduate degree in home economics who have had few or no professional education courses. The program is nonresidential and requires written and oral comprehensive examinations. Graduates obtain 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. program in the College of Education.

The program requires 20 semester hours of graduate course work in education and at least 18 semester hours of graduate work in home economics. Certification, the student must have completed (at the undergraduate and/or graduate level) a course in American politics or American government and two courses in each of the following: housing and interior design, family development, youth and family economics and home management, and textiles and clothing.

Other courses required for the M.A.T. program are:

17/121 Curriculum: Home Economics 3 sh.
TP/151 Educational Psychology 2 sh.
TS/125 Methods: Home Economics 3 sh.
TS/191-192 Observation and Laboratory Practice in the Second School 12 sh.
TF/107 History of Western Education 2 sh.
or
TF/117 Philosophies of Education 2 sh.
TF/110 Human Relations for the Classroom Teacher 3 sh.

Certification-Only Program
Students with the B.A. or B.S. degree in home economics may participate in the certification program in order to meet requirements for teaching vocational home economics in secondary schools.

Courses for this program are selected according to the student's background and professional goals. See the "College of Education" section of the Catalog.

Financial Awards
Several annual departmental awards recognize undergraduate students for their outstanding qualities and achievement in home economics. The Adele M. Hoffman Writing Award is given to the student who presents the most excellent written work completed by majors in home economics courses. 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 gold victrola of outstanding Academic Achievement. The Margaret Foster Moffitt Award is a full-in-state tuition scholarship given to a student for his or her senior year. Four H. H. M. Chastain Wolf Scholarships are awarded to undergraduate majors with financial aid. The Mary Lee Sprague Memorial Award is given to an outstanding home economics senior. The Mary Goodyear-Barns Senior Scholaristic Achievement Award is given to the senior with the highest grade point average during the junior and senior years. Other undergraduate awards include the Stokely-Campbell Camp Award, given to a senior for outstanding achievement in food and nutrition, and the Retiring Student Award. Four scholarships are given for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The Mary Goodyear-Barnes Graduate Scholarship is given 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 Wisconsin-Madison. Home Economics Association provides five scholarships, and the Ontario Agricultural Society Award is for a student specializing in textile design. Certificates of Outstanding Academic Achievement are given to graduate students who maintain a grade-point average of 4.0 or better.

A limited number of assistantships are available to graduate students.

Courses

Primaryly for Undergraduates

11/00 Cooperative Education Internship 1 sh.
11/00 Human Development and the Family 1 sh.
Introduction to life cycle human development, special emphasis placed on family roles, family process, and family interactions.
11/06 Growth and Development of the Young Child 3 sh.
Study of the physical, cognitive, emotional, and social development of the young child, with emphasis on the relationships between children and families. Offered spring semester.
11/52 Introductory Food Study 3 sh.
Basic scientific principles in the preparation of standard food products, includes laboratory.
11/41 Food, Nutrition, and You 3 sh.
Basic psychological and environmental aspects of human energy balance; nutrients; composition of foods. Offered fall semester. 11/41A and 11/41B.
11/52 Design for the Home 3 sh.
Preparation and application of design principles to selection and arrangement of residential interiors and objects. Offered fall semester.
11/54 Interior Design Presentation 3 sh.
Analysis of general layout and design elements: style, color, scale, and detail, as used in the design professions.
Prerequisites: 11/50 or 11/50A and 11/52.
15/02 Design Drawing 2 sh.
Construction drawings including plan, section, elevation, and details. Prerequisites: 11/50 or 11/50A and 11/52.
15/04 Interior Design: Construction 3 sh.
Basic clothing construction-use and selection of sewing equipment, patterns, and appropriate topics, understanding of construction situations and terminology. Permission by the instructor.
15/17 Apparel, Fashion, and Selection 2 sh.
Origins and analysis of apparel influence of social and economic variables on apparel: body, function, apparel selection problems, and special apparel needs. Offered winter semester.
11/06 Family and Consumer Sciences 1 sh.
Family behavior, population, sex roles, family roles, family relationships, and family management. For sociology credit, see 11/06.
11/07 Sociology of Family 1 sh.
Family behavior, population, sex roles, family roles, family relationships, and family management. For sociology credit, see 11/06.
11/07 Family and Consumer Sciences 1 sh.
Family behavior, population, sex roles, family roles, family relationships, and family management. For sociology credit, see 11/06.
11/07 Sociology of Family 1 sh.
Family behavior, population, sex roles, family roles, family relationships, and family management. For sociology credit, see 11/06.
11/07 Family and Consumer Sciences 1 sh.
Family behavior, population, sex roles, family roles, family relationships, and family management. For sociology credit, see 11/06.
11/07 Sociology of Family 1 sh.
Family behavior, population, sex roles, family roles, family relationships, and family management. For sociology credit, see 11/06.
17.88 Clothing

Readings, reports, and discussion of current literature including:

17.89 Research Problems in Clothing

individual research problems for advanced students
Prepared: 17.88 or consent of instructor.

17.88 Textiles

Readings, reports, and discussion of current literature in textiles.

17.80 Research Problems in Textiles

individual research problems for advanced students
Prepared: 17.88 or consent of instructor.

11.21 Thesis

Minor's degree completed.

Hospital and Health Administration

See "College of Medicine."

Italian

See "French and Italian."

Journalism and Mass Communication

School Director: Kenneth Share

Undergraduate Programs

The only objective of the Iowa undergraduate program is to prepare students for professional positions in journalism and for careers in the broad field of mass communication. Such positions vary widely but include newspaper reporting and editing, magazine writing and editing, public relations, broadcast journalism, organizational communication, book publishing, media graphics and design, media research, and photography. The Iowa program emphasizes the basics of reporting, writing, and editing, but professional preparation also requires an introduction to and an understanding of theoretical concepts. All courses in this service program are taught on a variety of courses.

To preserve a high quality program the College has a selective admissions policy. Prospective 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 Communication

19.91 Cultural and Historical Foundations of Communication.

Students may apply for admission to full major status after they have completed these requirements and have at least 55 semester hours (or have completed that many during the semester 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 on work done at Iowa or work transferred to Iowa. Other criteria considered by the undergraduate admissions committee are performance in the required pre-major courses, a statement of purpose signed by the student, and a statement on any existing circumstances. The goal of the program is to admit the most qualified applicants. The number of majors accepted each semester will depend on the number of students already in the program and available resources. A grade of D in journalism courses will not count toward fulfilling graduation requirements. To ensure that students have a strong liberal arts background to go with their professional preparation, the School limits students to 38 semester hours in the School of Journalism and Mass Communication. Students are expected to take course work outside journalism in significant depth. Journalism majors may complete the major requirements of another department, or create their own areas of concentration by selecting related courses in several departments for a total of 24 semester hours of credit beyond the general education level. Pre-majors are encouraged to think strongly about a second major—a major which, pending the outcome of the application for admission to full major status, could be in addition to or in place of the journalism major. This work will influence the student's decision to enter consultation with an advisor.

The Iowa program offers undergraduate and graduate courses in the study of: news-editorial, mass communications, and mass communication inquiry. In addition to the two pre-major courses 19.90 and 19.91,
students in all sequences must fulfill the following School requirements:

**Mass Communication Laboratory Sequence**

This sequence offers students an opportunity to develop both technical and creative communication skills. The student is required to take a series of courses that focus on the principles and techniques of mass communication. These courses are designed to provide students with a comprehensive understanding of the field of mass communication.

**Mass Communication Inquiry Sequence**

This sequence emphasizes the development of research skills in mass communication. The student is required to take a series of courses that focus on the principles and techniques of mass communication. These courses are designed to provide students with a comprehensive understanding of the field of mass communication.

**Two Degree Programs: B.A. and B.S. Degrees**

**B.A. Requirements**

Four semesters of a foreign language;

**B.S. Requirements**

Two semesters of a foreign language;

**School Requirements**

Sequence Courses;

**School Curriculum**

Six semester hours of social or natural science methods courses;

**Honors**

Freshmen and upperclassmen with outstanding academic records may participate in the Honors Program. They are eligible to participate in the Honors Program.
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 seeking admission. Each emphasis requires 30 semester hours of approved course work, the completion of a master's project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

Professional Journalism Emphasis

This emphasis is intended for students seeking to acquire their technical and analytical skills and to develop 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 have none.

Program requirements for students with no academic or professional experience in journalism and communication:

19:220 Master's Seminar 3 s.h.
19:230 News Reporting and Editing 3 s.h.
19:232 News Principles and Practice 4 s.h.
19:233 Specialized Reporting or Editing 3 s.h.
19:233 Mass Communication Lab 3 s.h.
19:231 option intended for students with special interest in public relations or organizational communication. Electives 17 s.h.
19:299 Master's Research 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 3 s.h.) 16 s.h.
Electives in other departments 15 s.h.
19:299 Master's Research 3 s.h.
Final examination, last period of enrollment.

The student must complete a major professional project (19:298) under supervision of a graduate faculty member during the last period of enrollment. The student selects elective courses in the School and in other departments in consultation with his or her advisor.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis upon theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work.

Program requirements:

19:220 Master's Seminar (two 2 s.h.)
19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
19:460 Communication Research: Historical Anomalies 3 s.h.
19:241 Communication Research: Behavioral Approaches 3 s.h.
Electives in communication and mass communication in other departments 15 s.h.
19:299 Master's Research 3 s.h.
Final examination, last period of enrollment.

All students are expected to take course work outside the School of Journalism and Mass Communication with the nature and extent of the work to be determined by the student and faculty adviser.

Development Support Communication Emphasis

This program focuses upon problem-solving procedures aimed at activating and accelerating third world development. Students planning careers in this area develop the conceptual expertise to identify those development problems requiring communication support and with the professional skills to design and test appropriate programs. The multidisciplinary program, involving the cooperation of the Departments of Geography and Political Science, offers two Alternative tracks:

A professional track for development support communication students intending to terminate their studies at the M.A. level. Such students complete a major professional project (19:298) emphasizing the design, testing or evaluation of development-related communication strategies.

A philosophical track for students intending to pursue a Ph.D. program upon completion of the M.A. work. Such students complete a major professional project (19:298) emphasizing theory, research and/or critical analyses of development support communication.

Program requirements for students pursuing either alternative.
Journalism 
19:206 Comparative Communication System or 19:207 Third World Development Support 3 s.h.
19:231 Mass Communication Laboratory 3 s.h.
19:239 Master's Research (thesis or project) 3 s.h.
Geography 
44:294 Geographic Perspectives on Development 3 s.h.
Political Science 
36:350 Political Economy and Public Policies in Developing Countries 3 s.h.
Electives 
May be taken in consultation with the student's advisor in any of the three participating departments or in other departments.
Final examination, last period of enrollment.

Doctor of Philosophy
The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such perspectives help one understand the historical and social contexts of these phenomena, and to analyze them as social phenomena. The program stresses the importance of theoretical and philosophical frameworks for the study of communication phenomena. The program also emphasizes the importance of empirical research methods for the study of communication phenomena. The program also emphasizes the importance of critical thinking and the ability to think critically about the social and cultural implications of communication phenomena.

Iowa Center for Communication Study
The center encourages and facilitates inquiry into communication problems by faculty members and students. The center also publishes the newsletter "Journal of Communication Inquiry," which is student-edited and serves to encourage different approaches to communication theory and research.

Financial Aid
In addition to research and teaching assistantships for graduate students, more than $55,000 in scholarship and financial aid is available to both undergraduate and graduate students. The School also has a program offering modest financial aid to first-year graduate students.

Internships
Cooperative Education Internship 4 s.h.

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's Cooperative Education Program. These experiences are selected and monitored to aid the student's professional growth. The School also works with the University Careers Office. In addition to internships, student-operated and locally owned 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 campus each year as part of John F. Murray Lectureships 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-SDX), and Women in Communication Incorporated (WCI).

Semester in London
Each academic year—during the 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 credits, including some offered in conjunction with The City University of London. Courses of both a practical and theoretical nature are offered with courses in specialized reporting and the history of the British media available from the City University of London. In addition, internships are arranged with London news media.

Courses
All courses listed as 100 level or above require at least junior standing or major status and/or consent of instructor. 100: 150 Introduction to Cooperative Education Internship 1-2 s.h.
151: 152 Introduction to Broadcasting and Film Production 3 s.h.
153: 154 Introduction to Visual Communication 3 s.h.
155: 156 Introduction to Advertising 3 s.h.
157: 158 Introduction to Public Relations 3 s.h.
159: 160 Introduction to Marketing and Advertising 3 s.h.
161: 162 Introduction to Advertising and Promotion 3 s.h.
163: 164 Introduction to Advertising and Promotion 3 s.h.
165: 166 Introduction to Advertising and Promotion 3 s.h.
167: 168 Introduction to Advertising and Promotion 3 s.h.
169: 170 Introduction to Advertising and Promotion 3 s.h.
171: 172 Introduction to Advertising and Promotion 3 s.h.
173: 174 Introduction to Advertising and Promotion 3 s.h.
175: 176 Introduction to Advertising and Promotion 3 s.h.
177: 178 Introduction to Advertising and Promotion 3 s.h.
179: 180 Introduction to Advertising and Promotion 3 s.h.
181: 182 Introduction to Advertising and Promotion 3 s.h.
183: 184 Introduction to Advertising and Promotion 3 s.h.
185: 186 Introduction to Advertising and Promotion 3 s.h.
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275: 276 Introduction to Advertising and Promotion 3 s.h.
Financial Aid

The University of Iowa has established several financial aid programs for undergraduate and graduate students attending the University. The scholarships cover Iowa residents and non-residents. All scholarship applications must be submitted by March 1.

Registration

Current and former students of The University of Iowa or the University of Northern Iowa who are interested in registering for classes must submit their application to one of the two academic programs. All registration forms must be completed and submitted to the registrar before the fall term begins.

Courses

Permission of the instructor is required for all courses. Enrollment in the following courses is limited to six students in each class. Classes meet all day, every day. Courses vary from year to year (see annual Iowa LakeSide Laboratory Bulletin). The following courses are representative:

- **LIT 103: Ecological Psychology**
- **LIT 104: Ecology of Plants**
- **LIT 105: Ecology of Animals**
- **LIT 106: Ecology of Invertebrates**
- **LIT 107: Ecology of Vertebrates**
- **LIT 108: Ecology of Plants and Animals**
- **LIT 109: Ecology of Invertebrates**
- **LIT 110: Ecology of Vertebrates**

Certification Requirements: Course Requirements

Teaching and research facilities include 29 laboratories, a library, and a lecture hall. Living accommodations include dormitories, dormitory halls, and a large mess hall.

Latin

Latin

See "Classic."
to the richness of life, and the ability to convey that appreciation to others. Identity and use bibliographic techniques and sources of information in a broad range of fields and media formats. Articulate an understanding of management theory sufficient to plan library and information services and perform the professional responsibilities of identifying needs, setting goals, analyzing problems, formulating programs and evaluating results. Cite and evaluate research that helps in the advancement of the profession and cite and evaluate the contributions to librarianship made by related disciplines. Plan for personal and professional career growth.

Research Objectives
To engage in research on library problems and areas related to library service which advances both the theoretical and practical knowledge of librarianship.
To give emphasis to research which directly supports the instructional program of the School of Library and Information Science or which may have special relevance to library service in the state of Iowa.

Public Service Objectives
To offer library perpex-serv and library trusts opportunities for continuing education and facilitate personal advancement and update their awareness of current developments in library operations and services.
To provide consulting services to individuals, libraries, and organizations in order to promote better library service for the citizens of Iowa and surrounding areas.
To participate in professional organizations at local, state, regional, and national levels in the pursuit of common goals within the profession.

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. 21-90 Information Handling is open to all undergraduates.

Graduate Students Not Admitted to Master of Arts in Library and Information Science
Graduate students not yet admitted to the master's program may be admitted upon request to the director, to take one course during the application process. This course may later apply to requirements for the degree. Graduate students in other programs may take a course only with approval of the director and the instructor of the course. The school will determine access to courses, such as those in subject bibliography, which may be relevant to the student's major program.

Master of Arts
Professional preparation for careers in all types of libraries is provided by the school's Master of Arts program. The school also offers a nondegree graduate program for certification in school librarianship, as well as a certification program leading to the master's degree.
Its graduates hold positions in public, school, academic, and special libraries, serving in such roles as administrators, 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 2.0. 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, an additional required course in a type of access, and electives. The student's plan of study should be carefully developed in relationship to career objectives. All courses to be applied to the 33-hour program must be approved by the adviser.
Core courses (required of all M.A. candidates) 12 s.h.
Type-of-library course (one required) 3 s.h.
21:233 School Library Media Center Administration
Electives 18 s.h.
It is strongly recommended that the student's electives include a bibliography course and a course in information science.
Elective courses in other departments of the University must be shown to be an integral part of the student's preparation for library and information science. Although many disciplines offer cultural and intellectual support to preparation for librarianship, they cannot be shown to warrant discontinuance of needed courses in a brief one-year program. Electives outside the department must be earned following admission to the School of Library and Information Science, and shall not exceed six semester hours for students having no previous courses in library science, nine semester hours for those with such previous courses. Only courses taken for graduate credit may be counted towards the 33-hour requirement.
The thesis option is not intended to replace course work in a student's basic preparation. It is available if the student completes the full 33-hour program, but it may count as part of the 33 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 21:245 Research Methods, or the equivalent. The purpose of the thesis option, then, is to expand the student's research competence and provide one means of independent study for a student with extensive preparation in library and information science. A maximum of nine semester hours of graduate credit may be accepted in transfer and be applicable to the master's degree in library and information science at The University of Iowa.
The work was done at the graduate level in an 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 the relevance of the work to the student's program.
An examination may be required on the subject matter as further evidence of competence in the course subject.
The program normally requires two semesters and one summer of resident study, or, in the case of students attending only in the summer, a minimum of four summer sessions. Maximum graduate course load is 15 semester hours in regular quarters, eight semester hours in summer sessions.
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 a majority of funding from local taxes, but are often organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries makes this area of librarianship a challenging one.

A major concern of public librarians is to design innovative service programs that reach those segments of the population now underserved, as well as to provide a full range of services to all members of the community. Management skills are often needed in these positions.

Required Courses
Core courses 12 s.h.
21:231 The Public Library 3 s.h.
Suggested Electives 18 s.h.

Bibliography courses
Courses relating to service to children and young adults. 21:123 Literature for Children I 21:124 History of Books for Young People 21:212 Literature and Storytelling for Children 21:193 Literature for Adolescents 21:234 Library Services to Children and Young Adults 21:244 Bibliography of Library Materials for Children and Young Adults 7E:204 Literature for Children II

College and University Library Work
The academic library, whether in a community college or a university, provides information, education, and research services to students, faculty, and staff. Management or supervisory skill is often required. Special competencies such as a subject or language specialty or an activity specialty (classification and indexing, information systems, etc.) may be necessary.

Required Courses
Core courses 12 s.h.
21:323 The College and University Library 3 s.h.
Suggested Electives 18 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 parent 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 more usually found in special library work than in more traditional libraries.

Required Courses
Core courses 12 s.h.
21:250 Special Libraries 3 s.h.
Suggested Electives 18 s.h.

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 such activities as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, procuring new materials, offering mailing guidance, and providing reference service. To qualify as a school library media specialist in the State of Iowa, students must hold a valid teaching certificate and the appropriate endorsement for school library work. School library media certification requirements, however, vary widely from state to state. The requirements set forth in this program are designed to meet Iowa endorsements 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 to work 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 Iowa endorsements, and courses are suggested that will prepare them to work both in elementary and secondary situations.

Required Courses
Core courses 12 s.h.
21:232 Multi-Media Concepts in Libraries 21:233 School Library Media Center Administration 7H:262 School Library Media Center Practicum 3 s.h. 3 s.h. 3 s.h.
Suggested Electives 12 s.h.
21:124 History of Books for Young People 21:125 Literature and Storytelling for Children 21:193 Literature for Adolescents 21:234 Library Services to Children and Young Adults 21:244 Bibliography of Library Materials for Children and Young Adults

Iowa School Library Media Certification, K-12
The school offers approved programs for the state certification in these areas: school librarian for kindergarten through grade 12 (Iowa endorsement 34) and director of library services for kindergarten through grade 12 (Iowa endorsement 51). Since these are endorsements to the teaching certificate, students must hold a valid Iowa teaching certificate to qualify for these endorsements.

Students 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 earned without the M.A. degree by combining 30 semester hours of undergraduate and graduate course work approved by the advisor. Twenty of these hours must be earned here. Included in the 30 semester hours must be 21:151-152, 21:203, 21:233, and 21:262 or their equivalents as determined by the instructors teaching the courses. In order to pursue such a non-degree program, however, a student must first be accepted for admission to the School of Library and Information Science.
Facilities and Resources
The School of Library and Information Science is conveniently located in the south wing of the University's Main Library, providing facilities for the varied instructional and research activities of the school.

Media Lab and Darkroom
A media lab contains equipment and space for slide-tape production, videocassette production, super-8mm filmmaking, filmstrip production, 16mm film production, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities
An online lab includes three CRT terminals, one printing terminal, one printer, and a personal computer. This equipment provides local computing, access to the University's Weeg Computing Center, and access to national bibliographic databases and OCUL. In various courses, students learn to write programs, design information systems, conduct database searches, and recall and manipulate bibliographic records in the OCUL database.

Statewide Reference Service
The school serves as one of 18 units of a state network of academic and public libraries. Students provide book-up reference service to libraries throughout the state, using learned skills to perform bibliographic verification and to answer reference questions. The service helps students refine and integrate classroom instruction and provides reference experience.

Departmental Library
The library science library, one of 12 departmental branches of the Main Library, is located within the school's quarters. The collection contains approximately ten thousand volumes and two hundred periodical titles related to the study or practice of library and information science. Currently, the library owns an AV equipment for viewing library materials. Tables, chairs, and easy chairs allow a choice of study seating, and the atmosphere is casual and friendly.

University Libraries
All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two million volumes in the Main Library and 12 departmental branches. An average of 50,000-70,000 volumes is acquired annually. The serials collection is extensive, with more than 22,000 current subscriptions. The third floor of the Main Library houses the government publications map, and special collections rooms, as well as bound periodicals. The location of the School of Library and Information Science on this floor gives quick access to these frequently used collections.

Other Libraries
Students have access to a variety of libraries through field trips, practicum experience, and personal use. The State Historical Society Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries; the Coe, 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
Loudoni Center, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and the Weeg Computing Center. The resource center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Unit, and a counseling center. The Curriculum Resources Lab contains an extension of the book collection; and nonvisual materials are especially valuable for students interested in school or public library work. The 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 course-related research, thesis preparation, and classroom. Each graduate student is provided with an unreserved account by the Graduate College.

Faculty Advising
The School of Library and Information Science has a low student-faculty ratio, a faculty well-informed and dedicated to their field, and an atmosphere of healthy student-faculty interaction. Adviser assignments are made when students enter the program, and students are encouraged to discuss career objectives and problems with other faculty members as well. The relatively small number of students in the school allows faculty members to get to know students personally and to take an interest in their professional development.
Student Activities

Students have a variety of activities available to them in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and internships provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Library and Information Science Student Organization (JSSLQ) serves as a liaison between students and faculty, to promote student activities and concerns. A member attends faculty meetings as a student representative. The group also organizes social activities for both students and faculty.

Placement

The school provides active placement assistance to its graduates by means of bulletin board employment, seminars on resume writing and interviewing, and personal counseling. The University's Vocational Placement Office issues a weekly listing of job openings and provides a credential life service.

Iowa graduates find positions in all types of libraries. The placement distribution for the past five years was: public libraries 38 percent, school libraries 37 percent, academic libraries 31 percent, and special libraries 12 percent. Iowa graduates work in libraries in 44 states. Strong personal and interpersonal skills, a flexible approach, 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; and

A combined verbal/quantitative score of 950 on the GRE (Graduate Record Examination) and a 3.0 in GPA.

Personal qualifications and aptitude for library work are assessed by means of letters of recommendation and a personal interview with the director of the school or the director's assistant, and another member of the faculty. In the case of extreme distance, an alternate interview may be provided nearer the applicant's home. 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 attain a score of 550 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 prior examination 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). Aptitude 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 will be considered if places are still available. Financial assistance, however, is often not available for late applicants.

Financial Assistance

The School of Library and Information Science awards partial-scholarship scholarships; as well as federal and state in-state graduate assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average and combined verbal- quantitative scores of 1100 on the GRE Aptitude Test. Those who do not meet these requirements when enrolling in the program may apply for an assistantship after completing 12 semester hours of graduate work with a 3.0 graduate point average. Proactive students are urged to apply for these awards before March 1. For information on employment, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid, Cofer Hall.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions are usually available in the Libraries.

Courses

210 Information Retrieval

Designed to provide students with skills to effectively gather, manipulate, and synthesize information from library and non-library sources.

2111 Literature for Children

Same as 7122

2112 History of Books for Young People

Development of literature for children and young adults from oral culture through the mid-twentieth century in context and illustration; sharing of courses of past research projects and impact on current research. Offered once per year.

2113 Literature for Older Adults

Same as 7123

2116 Literature and Storytelling for Children

Same as 7120

2118 Cataloging and Classification

The basic principles and procedures are discussed, with emphasis on effective retrieval and organization of the library collection. Students and L.C. subject headings, cards and other indexing devices, and other classification systems.

2123 Selection of Library Materials

Introduction to the library and information professions. Emphasis is placed on the methods and tools used to develop collections of library materials and resources.

2129 Management of Library Information Centers

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel.

2131 Technical Services in Libraries

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel. The center's evaluation, and the center's personnel.

2132 Multi-Base Concepts in Libraries

Concepts and scope of library service beyond primary materials in school, public, and academic libraries; utilization and basic production. Offered alternate terms.

2133 History of Books

Development of books from 1450 to the present materials, graphic methods, and technology which shaped the book, publishing, publicity, and acquisition.

2138 Special Libraries

The principles, history, and practice of special libraries; the services to special libraries in special situations; and the role of special libraries in society.

2139 Library Administration

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel.

2131 The Public Library

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel.

2131 The College and University Library

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel.

2131 School Library Media Center Administration

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel.

2134 Library Services to Children and Young Adults

Preparation of the library, preparation of the center, the center's program, the center's evaluation, and the center's personnel.

2134 Bibliography of the Humanities

Satisfactory reference sources and selection aids in philosophy, religion, the arts, literature, social sciences, and humanities. Offered alternate terms. Prerequisite: 2117.

2134 Bibliography of the Social Sciences

Satisfactory reference sources and selection aids in philosophy, religion, the arts, literature, social sciences, and humanities. Offered alternate terms. Prerequisite: 2117.

2134 Bibliography of the Natural Sciences

Satisfactory reference sources and selection aids in philosophy, religion, the arts, literature, social sciences, and humanities. Offered alternate terms. Prerequisite: 2117.
Courses

Special English Courses for Foreign Students

Iowa intensive English Program (103.1, 103.2, 103.3, 103.4, 103.5) 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: permission of department.

103.1 Iowa Intensive English Communication Skills

103.2 Iowa Intensive English Listening Comprehension

103.3 Iowa Intensive English Reading

103.4 Iowa Intensive English Grammar

103.5 Iowa Intensive English Writing

Prerequisite: permission of department.

103.6 Conversation Skills for Foreign Students

Practice in conversation, with the goal of communicative competence: basic syntax, vocabulary, and grammar.

103.79 Pronunciation and Oral Skills for Foreign Students

Pronunciation and the daily use and operation of persistent pronunciation problems and the correct use of stress and intonation in daily conversation.

103.88 Grammar for Foreign Students

Practice in the parts of English sentence structure.

103.89 Written English for Foreign Students

Emphasis on the process of prewriting, outlining, and the use of formal vocabulary, practice in using various patterns of organization in writing.

103.96 Composition of Spoken English for Foreign Students

Focus on learning to recognize English sound contrasts, grammatical structures, and common vocabulary, practice in learning to classroom inclusion and in rote reading.

103.106 Composition of Written English for Foreign Students

Focus on sentence structure and comprehension of the English language and well organized by university students, practice in taking notes on reading materials.

103.108 Special Instruction in ESL for Foreign Teaching Assistants

Instruction and practice in English skills, cross-cultural differences in educational systems, and intercultural strategies for potential educational and social situations.

Primarily for Undergraduates

103.11 Language and Society

Conclusions concerning cross-linguistic and intercultural research in psychology, educational implications of findings.

103.2 Language and Formal Reasoning

Introduction to formal study of logic, reasoning through logical analysis in reasoning, logical analysis of definitions and theses, operations: question, operation, and logical reasoning.

103.3 Special Project

Independent research on a linguistic topic directed by a member of staff.

103.101 Introduction to Linguistics

Variety of topics in general linguistics. Same as 40.101.

103.102 Language, Society, and Education

Social factors which influence language and development of psycholinguistic indicators of sociolinguistic changes in the visual and literature students. Concepts of a "standard" language and students of language. Same as 40.102.

103.103 Teaching English as a Foreign Language

Domains of discourse analysis, teaching foreign language students, use of text, help students apply an understanding the process of language acquisition. Prerequisites: 103.105, 103.106.

103.104 American Culture and Attitudes

Aesthetics and sociolinguistic therapy, intercultural analysis of psycholinguistic problems.

103.105 Sociolinguistic Analysis

Introduction to the role of generative model dealing with a wide range of sociolinguistic problems in natural languages.

103.106 Phonological Analysis

Solution of problems in phonological analysis in the framework of generative theory. Prerequisites: 103.105, 103.106.

103.107 Linguistic Field Methods

Gathering and collection of language data in field and theoretical problems. Emphasis on data collection in the field, data analysis, and report writing.

103.108 Sociolinguistic Language Data Processing

Introduction to computer use in sociolinguistics, teaching use of existing programs, computer use in nonverbal language analysis. Same as 103.114.

103.109 Language Testing and Evaluation Techniques

Tests of speech and language behavior in the context of "normal" models of language production and perception. Emphasis on speech behavior, with additional treatment of behaviors like reading, writing, high language in both social and research environments.

103.110 Women, Languages, and Language of the Hispanic World

Survey of much sociolinguistic issues as are used in society, and social context in which language is used in the Hispanic world context of Hispanic hypotyposis, emphasis on Spanish, Portugese, and Brazilian. An understanding of the changes that are taking place.

103.111 Spanish: Topical in Portuguese Linguistics

Psycholinguistic, ideological, religious, and social language acquisition, Portuguese-English linguistics, and the relationship of language and language use in Portugal and Brazil. Prerequisites: a basic understanding of Portuguese and an introductory course in Portuguese or an equivalent. Same as 20.111.

103.112 Romanian Language and Literature

Introduction to the structures, use of language and literature, historical perspective of the Romanian language and literature, including the influence of the Byzantine Empire, the history of Romanian literature, and the influence on modern Romanian literature.

103.113 American Culture and Society

Introduction to the role of generative model dealing with a wide range of sociolinguistic problems in natural languages.

103.114 Sociolinguistic Phonology

Phonological theory and phonological theory of generative linguistics, analysis of readings in sociolinguistics, linguistics. Same as 103.111.

103.115 Introduction to Multilingual Language Theory

Introduction to the role of multilingual model dealing with a wide range of sociolinguistic problems in natural languages.

103.116 Language and Society

Conclusions concerning cross-linguistic and intercultural research in psychology, educational implications of findings.

103.117 Language and Formal Reasoning

Introduction to formal study of logic, reasoning through logical analysis in reasoning, logical analysis of definitions and theses, operations: question, operation, and logical reasoning.

103.118 Special Project

Independent research on a linguistic topic directed by a member of staff.
Courses in LSA are open to juniors, seniors, and graduate students from any department of college. Freshman and sophomore students may occasionally be admitted by approval of the instructors.

Courses are conducted by round-table discussion, in a small group of students with two or more faculty representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines while they focus on important problems of value and judgment in our times. Reading lists are chosen from outstanding works of past and present.

The following are the specific requirements beyond the general education courses, for the B.A. in Literature, Science, and the Arts.

LSA
Natural social sciences 12 s.h.
Philosophy, religion, history 12 s.h.
Literature beyond general education requirements 12 s.h.
Fine arts 3 s.h.
Foreign language 3 s.h.
one semester beyond second year
(foreign/variable courses are optional and may be used to satisfy the requirement in Literature)

Students considering an LSA major should consult with the chair before the end of the sophomore year.

Honors
Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree "with honors." To be admitted as a candidate for honors, the student must have the endorsement of the chair of the Interdisciplinary Program in Literature, Science, and the Arts and meet College of Liberal Arts requirements for the Honors Program. An honors student submits an honors project and takes an examination on a personal honors reading list, during the semester before graduation.

Courses
150 Introduction to the Liberal Arts 3 s.h.
Dissolves the nature and aims of liberal education and explores University resources.
320 The Political Imperative 2 s.h.
Treatment of political thinking in various types of political thought by Aristotle, Freud, Calvini, Montesquieu, Vico, Bentham, Spinoza, etc.
3200 Law and the Western World 2 s.h.
Major ideas, importance, variations of laws as they see other cultures, history, arts, philosophy, poetry, and religion.
3201 Social Justice 3 s.h.
Interests between myth and reason as significant aspects of the same human thought: reading from Shakespeare, Plato, Milton, Nietzsche, anthropologists, novelists.
3202 The Good Society 4 s.h.
Man's role in society and the possibilities of man's life in society as seen by Plato, Rousseau, Machiavelli, Shakespeare, Locke, Gobineau, Marx, recent fiction and nonfiction.
323 The Impact of Politics 3 s.h.
Political experience as presented in biographical and autobiographical works.
3231 The Ethics in Law and Society 3 s.h.
Studies the laws that reflect perspectives, emphasizing legal and social differences. From historical and current perspectives of various societies, and imaginative representations in literature.
3232 Private Lives and Public Institutions 3 s.h.
Examine relationships between individual and institutions through various works of literature, painting, and music. Courses are selected by advisers such as Hatch, Sherman, Martin, de Tocqueville, Tolstoy, and Churchill.
3233 Values in the Contemporary World 3 s.h.
Modern problems in definition and choice of values examined through works of contemporary fiction and poetry.
3234 Human Nature and the Impact of Science 3 s.h.
Relationship of science to humanistic, social, and religious thought. Same 45.11 14.
3235 Farm and Mills in the Arts 3 s.h.
Interdisciplinary between farm and other cultural patterns, institutions, and ideas, taking orientation of creative and theoretical writings, tidbits of music, and ideas.
3236 Women 1800-1940 3 s.h.
Revolutions in women's roles continue to influence modern life. Women's roles include history, literature, and art. Women artists from the Renaissance to Reinhardt, Klee, Sertozl and House, and artists from authors such as Freud, Wifilson, Goodrich, Music, and Homomorphic.
3237 Paths of Modern Culture 3 s.h.
Library and social institutions of modern communication.
3238 Open as Drama 3 s.h.
Literature and music as autonomous and interconnected elements in plays and other musical works with text.
3239 Special Projects 3 s.h.
3240 Independent Study for Honors 3 s.h.
Honor students must take 3240 and 3241 for a total of four semester hours. The two courses cannot be taken concurrently.
3241 Independent Study for Honors 3 s.h.

Division of Mathematical Sciences

Bachelor of Arts
Students must take at least seven additional approved courses from the division beyond one year of calculus (other than 231-25-26 Calculus III or 232-35-36 Engineering Calculus I, II or 250-45-46 Accelerated Calculus I-II). Each of these seven courses must carry at least three semester hours of credit. Except for students electing the applied/ mathematical sciences option or those seeking a secondary teaching certificate, at least two of these seven courses must be chosen from the following list:


Some of the above courses require extensive prerequisites which the student should consider in planning his or her program.

Students should consult the division officers for advice which 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 and two seven required courses in mathematics. See further requirements 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 one-semester courses from the division, each carrying at least two 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 closely together in selecting 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. The typical program should include 22M:15 Introduction to Programming and a course in calculus and linear algebra, 22M:25-26 Calculus I-II or 22M:45-46 Accelerated Calculus I-II, 22M:27 Introduction to Linear Algebra, and a course in computer science.

**Actuarial Science**

The student who plans to enter the actuarial profession should be guided in course selection by the program of education and examinations carried on by the principal actuarial organizations. Following a sequence in calculus and linear algebra (22M:25-26 Calculus I-II or 22M:45-46 Accelerated Calculus I-II, 22M:27 Introduction to Linear Algebra, and 22M:28 Calculus III), the student should take 22M:33-34 Differential Equations for Engineers, 22M:35-36 Functions of Several Variables, and 22M:37-38 Probability and Statistics. Additional courses in mathematics are recommended.

**Mathematical Education**

Mathematics courses required for students in mathematics education are 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. For the Division of Mathematical Sciences, see the Mathematics Education requirements for at least two 100-level courses and cross-listed with Education in the Division of Mathematical Sciences.
Further courses in probability and statistics may be selected from courses in the Department of Statistics numbered 101 and above, excluding 225:101, 225:105, and 225:106.


Applied Mathematical Sciences Option

This option is designed to reflect the increasing diversification of applications of mathematics and statistics to the social, biological, and physical sciences, and to management, business, ecology, linguistics, and engineering.

The student electing this option must include the following among the seven courses he or she takes beyond the first year of calculus:

- 225:27 Introduction to Linear Algebra
- At least three Division of Mathematical Sciences courses numbered 225:50 or above (excluding 225:80:81 and including at least one course numbered 225:105 or above)
- At least three additional quantitative courses taught by department outside the division, or, at the student's option, taught by two closely related departments.

In addition to the above, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least two semester hours of credit.

A student taking this option must include an area of concentration in his or her program, and must acquire some experience in the use of the computer.

Students electing this option are assigned specially-designated program advisors.

Transfer Students

Undergraduate transfer students in mathematics must earn at least nine semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 225:16, Introduction to Programming with Pascal.

Minor

All students are required to take a year of calculus. The courses designated as upper level for the purposes of satisfying the minor field requirement in the Division of Mathematical Sciences are those that have been approved for the satisfaction of the seven-course requirement for a major in the Division of Mathematical Sciences. Students majoring in either Computer Science or Statistics and Actuarial Science may not use courses in their major department to satisfy the minor field requirement. Further information on the approved courses can be obtained from the division 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 and wishing to earn a Master of Business Administration degree in one year of graduate study should consult with his or her advisor and with the associate dean of the College of Business Administration prior to the junior year concerning business courses which should be included in the undergraduate program.

Applied Mathematical Sciences

Program Chair: Herbert M. Horner

Faculty: Velmer A. Adolphsen (Department), Dennis L. Bixler (Systems Engineering), Cheng-Chin Chen (Biology and Mathematics), John J. Deegan (Mathematics), E. Ronald (Mathematics), Stephen F. Hanlon (Economics), Tyler C. H. Hawkins (Mathematics), W. Edward Kipnis (Physics), George K. Kipnis (Physics), Karl E. Langerman (Mathematics), Stephen J. Richardson (Mathematics), John Temple (Mathematics), Edward H. Tashiro (Computer Science), George Woodward (Engineering)

Degree: Master of Science

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems; discuss, interpret, and evaluate the solutions; explore ideas for and areas of mathematical application; and develop mathematical theories in new areas.

Career opportunities include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, and professional consulting positions.

The Program in Applied Mathematical Sciences at The University of Iowa is an autonomous, broadly based interdisciplinary program leading to the Doctor of Philosophy degree. The program seeks to help the student achieve a command of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) and obtain a basic knowledge of at least one science (behavioral, biological, engineering, medical, physical, or social). The program is flexible so that a student can concentrate on applied mathematics such as differential equations and numerical analysis or on other applicable techniques in mathematics, statistics, or computer science.

Applicants are expected to have a strong background in a mathematical science, together with a desire to apply a mathematical science to relevant scientific problems in another scientific field. Students may enter with either a bachelor's or master's degree.

The faculty members associated with the program assist each student in planning a course of study which is consistent with the student's background, interests, and goals. They also assist each student in finding a suitable thesis problem and supervisor in the science chosen by the student.

The student's program is designed to develop expertise in methods of application of a mathematical science to build a good foundation in related topics of theoretical mathematics, statistics, or computer science, and to provide sufficient knowledge in a particular science so that the student can use mathematical science techniques in that science. The study plan can be arranged so that a master's degree is obtained from a science or a mathematical science department after completion of part of the plan.

The Ph.D. comprehensive examinations for a student cover three areas: theoretical foundations in the mathematical sciences, methods of application to the chosen scientific area. An objective of the program is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, this could involve formulation of a model, quantitative analysis of the model, and interpretation of the results.

Research and teaching assistantships are available to qualified applicants. Support for students as research assistants is available during the summers. Applications for Fall semester admission and for financial support should be made to the Admissions Office. For application forms and further information about the academic program, write to the Chair, Program in Applied Mathematical Sciences, The University of Iowa, Iowa City, Iowa 52242.

Courses

101:297 Seminar in Applied Mathematical Sciences

Prerequisite: consent of instructor

101:299 Reading and Research

Prerequisite: consent of instructor

Computer Science

Department Chair: Arthur C. Pyle

Faculty: professors Donald A. Alton, Donald E. Eppley, Arthur C. Pyle; associate professors Robert J. Bucek, Robert V. S. Bhat, Napoleon Rhee; teaching/TA/TA
Computer Science/LIBERAL ARTS

BACHELOR OF SCIENCE

For the B.S. degree, the student must complete the computer science requirements for the B.A. degree plus two additional one-semester courses (each having at least two semester hours of credit) from the list below. At least one course must be from the Department of Computer Science.

Computer Science courses
- 220:35 Elementary Numerical Analysis
- 220:99 Topics in Computer Science
- 220:115 Software Engineering
- 220:116 Operating Systems and Concurrent Programming
- 220:147 Advanced Computer Organization and Architecture
- 220:123 Programming Language Foundations
- 220:125 Data Abstractions, Types, and Structures
- 220:127 Compiler Construction
- 220:130 Introduction to Compilation Theory
- 220:146 Design of Information Systems
- 220:145 Artificial Intelligence
- 220:145 Computer Vision and Robotics
- 220:153 Design and Analysis of Algorithms
- 220:167 Theory of Graphs
- 220:176 Computer Communications
- 220:198 Individual Programming Projects
- 220:40 Mathematics courses
- 220:55 Group Theory
- 220:55 Fundamental Properties of Spaces and Functions
- 220:70 Foundation of Modern Geometry
- 220:102 Probability (except 220:101)

Artificial Intelligence

Electives
For the B.A. or B.S. degree, the student must take at least 20 semester hours of electives in a coherent manner in a field of potential concern to the student, such as business, engineering, physics, or any field in which the student plans to apply the computer science degree. These courses must be approved by the student's advisor and cannot be taken pass/fail. They may also be used to satisfy the college electives requirement.

Minor
For a minor in computer science, a student must complete: 220:16 Introduction to Programming with Pascal
- 220:17 Programming Techniques and Data Structures
- 220:18 Computer Organization and Assembly Language Programming, and two more courses from among: 220:19 Programming with COBOL, or any computer science courses numbered higher than 220:18 except 220:109. These courses cannot be taken pass/fail.

Master of Science
A candidate for the M.S. degree in computer science must complete the following courses or acquire equivalent proficiency in the minimum total of 30 semester hours of credit required for the M.S. degree.

- 220:116 Operating Systems
- 220:122 Advanced Computer Organization and Architecture
- 220:123 Programming Language Foundations
- 220:130 Introduction to Computation Theory
- 220:130 Programming Projects
- 220:153 Introduction to Computer Science
- 220:153 Individual Programming Projects
- 220:167 Theory of Graphs
- 220:176 Computer Communications
- 220:198 Individual Programming Projects

Total 30 hours
Doctor of Philosophy

Doctoral students are expected to complete 80 to 90 semester hours of graduate work, including a thesis. The student need not have a master's degree when beginning the Ph.D. program, and need not acquire one. Course requirements for the doctorate include:

22C:18 Operating Systems and Concurrent Programming 3 s.h.
22C:12 Advanced Computer Organization and Architecture 3 s.h.
22C:13 Programming Language Foundations 3 s.h.
22C:12 Data Abstractions, Types, and Structures 3 s.h.
22C:12 Compiler Construction 3 s.h.
22C:13 Introduction to Computer Theory 3 s.h.
22C:14 Design of Information Systems 3 s.h.
22C:14 Artificial Intelligence I 3 s.h.
22C:13 Design and Analysis of Algorithms I 3 s.h.

The student must also complete at least 21 semester hours of 200-level computer science coursework in addition to 22C:399 Research for Dissertation. In addition to the course work in computer science, the student must complete at least three courses, with grades of A or B, in one of these outside areas:

Algebra
Logic and set theory
Numerical analysis

At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

After the student passes the qualifying examination, the student selects a faculty advisor to direct his or her Ph.D. comprehensive examination. This dissertation committee administers the comprehensive examination after the student has substantially completed the required coursework.

Examinations are described in the Graduate Handbook. The student prepares a written proposal for research and defends the proposal in an oral examination administered by the dissertation committee. The student must demonstrate expertise in the area of proposed research, and must justify the proposal in terms of originality and significance.

The student must make an oral defense of the dissertation.

Graduate Service Courses

Competence and experience in the use of a digital computer as problem solving is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence 22C:106 Introduction to Programming with Pascal and 22C:107 Programming Techniques and Data Structures is recommended. Students in fields in which other programming languages are heavily used may find 22C:150 Introduction to Computing with FORTRAN or 22C:159 Programming with C more appropriate.

Courses for Undergraduates

22C:99 Cooperative Education Training Assignment 0 s.h.
22C:1 Survey of Computing 3 s.h.
22C:110 Introduction to Computers and Computing 3 s.h.
22C:11 Introduction to Computer Programming with FORTRAN 3 s.h.
22C:159 Programming with C 3 s.h.
22C:15 Programming with COBOL 3 s.h.
22C:16 Introduction to Programming with Pascal 3 s.h.
22C:18 Programming techniques and data structures 3 s.h.
22C:19 Computer Organization and Assembly Language Programming 3 s.h.
22C:190 Data Structures 3 s.h.

Graduate School Courses

Graduate School courses are designed to provide the necessary background in the area of specialization of 22C:106 Introduction to Programming OR 22C:107 Programming Techniques and Data Structures as needed for the degree. The courses are offered at the 200-level unless otherwise designated. For a complete list of courses, see the current course catalog or contact the department.

Programs and degrees offered in the Department of Computer Science include the following:

Master of Science

Master of Science in Computer Science

Graduate Certificate

Graduate Certificate in Computer Science

Ph.D. in Computer Science

For more information, please contact the Department of Computer Science.
Primarily for Computer Science Majors

219.115 Programming with Computers

3 s.h.
Not open to undergraduates or computer science majors for credit degree.

219.115 Independent Study

arr.
Topics individualized. Not given to undergraduates or computer science majors for credit degree.

219.120 Programming with Computers 3 s.h.

219.111 Programming with Computers 3 s.h.

219.114 Computer Vision and Robotics

3 s.h.
Vision, edge detection, determining shape and flow and shape recognition, pattern recognition, image understanding, and computer vision, with applications to robotics, video tracking and navigation, graphics, and manipulation.

219.132 Design and Algorithms of Algorithms

3 s.h.
Introduction to the design and analysis of algorithms, including algorithms, data structures, and the analysis of algorithms and data structures, with special emphasis on time and space complexity, with applications to graphs, trees, and networks.

219.133 Theory of Games

3 s.h.
Introduction to the theory of games, including game theory, mathematical models, and applications to economics, finance, and business, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.134 Data Structures

3 s.h.
Introduction to the theory of games, including game theory, mathematical models, and applications to economics, finance, and business, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.135 Introduction to Computation Theory

3 s.h.
Semi-formal machine instructions, the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.136 Design of Information Systems

3 s.h.
Design of information systems, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.137 Artificial Intelligence

3 s.h.
Introduction to the theory of games, including game theory, mathematical models, and applications to economics, finance, and business, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.138 Interactions with Computer Systems

3 s.h.
Introduction to the theory of games, including game theory, mathematical models, and applications to economics, finance, and business, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.139 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.140 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.141 Design of Network Systems

3 s.h.
Design of network systems, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.142 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.143 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.144 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.145 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.146 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.147 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.148 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.149 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.150 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.151 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.152 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.153 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.154 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.155 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.156 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.157 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.158 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.159 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.160 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.161 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.

219.162 Advanced Topics in Robotics

3 s.h.
Advanced robotics, including the use of hardware and software, and the use of machine and computer languages, with special emphasis on the theory of games and its applications to economics, finance, and business.
Students are required to take two comprehensive examinations: one covering the content of 22M:175, 22M:171, and 22M:135; the other covering the content of 22M:101, 22M:102, and 22M:109.

Two or more of the following:
22M:140-22H Theory of Functions
22M:150 Complex Variables
22M:151 Linear Algebra
22M:152 Theory of Graphs
22C:116 Operating Systems and Concurrent Programming
22C:153 Design and Analysis of Algorithms I
22C:155 Introduction to Probability
22C:156 Introduction to Mathematical Statistics
22C:167 Introduction to Mathematical Processes

This program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences. Students who have courses or experience equivalent to the required courses may substitute electives.

Program IV
This program is designed for non-experimental students working toward a Ph.D. in another area requiring mathematical knowledge. The program has no required courses. Course distribution requirements are the same as for program I.

The student in program IV is considered to have passed the comprehensive examination for the master's degree in mathematics if she or he has maintained a minimum grade-point average of 3.0 in all mathematics courses taken for the master's degree in mathematics and successfully completed the comprehensive Ph.D. examination in the chosen area.

A student in program V is assigned a mathematics advisor who will work with the student and the student's major advisor to plan an appropriate curriculum for the master's degree in mathematics.

Admission
To be admitted to an M.S. degree program in mathematics, a student must have completed work in an undergraduate mathematics program equivalent to the one offered by the Division of Mathematical Sciences. A student whose preparation does not meet this requirement may be required to take certain additional courses to cover the deficiency.

Doctor of Philosophy
Most of the recent graduates of the Ph.D. program have found positions teaching in universities or colleges.

There is ample opportunity for Ph.D. candidates to take courses in applicable mathematics, both in the mathematics department and in other departments in the division. There is no formal departmental policy distinguishing between pure and applied mathematics. The requirements for the Ph.D. in mathematics include 72 semester hours of graduate credit; at least three years of graduate residence, including at least one year at The University of Iowa. Each graduate student in mathematics is expected to gain experience, while at the University, in the oral communication of mathematics; this requirement is usually fulfilled by full-time teaching or seminar lecturing.

The comprehensive qualifying examination for the Ph.D. in mathematics covers three of these areas: algebra, analysis, logic and topology. The student selects the three areas on which he or she wishes to be examined.

The candidate must also write a thesis and pass a final examination. The candidate will be required to demonstrate reading proficiency in either French, German, or Russian by either passing a language test administered by the appropriate foreign language department or earning a grade of B or better in the second semester of a course offered by the appropriate foreign language department. This demonstration must take place after the student has enrolled in graduate school.

For information about the Ph.D. program, in mathematics education, consult the brochure, Advanced Studies in Education, 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 and are open only to special arrangement with the chair of the department.

22C:111 Basic Mathematical Techniques
3 s.h.

22C:112 Introduction to Probability
3 s.h.

22C:113 Introduction to Physical Mathematics
3 s.h.

22C:114 Introduction to Statistical Mathematics
3 s.h.

22C:115 Introduction to Mathematical Statistics
3 s.h.

22C:116 Operating Systems and Concurrent Programming
3 s.h.

22C:117 Theory of Functions
3 s.h.

22C:118 Complex Variables
3 s.h.

22C:119 Linear Algebra
3 s.h.

22C:120 Logic and Set Theory
3 s.h.

22C:121 Discrete Mathematics
3 s.h.

22C:122 Advanced Computer Organization and Architecture
3 s.h.

22C:123 Programming Language Fundamentals
3 s.h.

22C:125 Introduction to Computer Science
3 s.h.

22C:144 Artificial Intelligence I
3 s.h.

22C:145 Introduction to Artificial Intelligence II
3 s.h.

22C:146 Introduction to Artificial Intelligence III
3 s.h.

22C:147 Introduction to Artificial Intelligence IV
3 s.h.

22C:150 Complex Variables
3 s.h.

22C:151 Linear Algebra
3 s.h.

22C:152 Theory of Graphs
3 s.h.

22C:153 Design and Analysis of Algorithms I
3 s.h.

22C:155 Introduction to Probability
3 s.h.

22C:156 Introduction to Mathematical Statistics
3 s.h.

22C:167 Introduction to Mathematical Processes
3 s.h.

22D:111 Linear Algebra
3 s.h.

22D:112 Abstract Algebra
3 s.h.

22D:113 Calculus I
3 s.h.

22D:114 Calculus II
3 s.h.

22D:115 Calculus III
3 s.h.

22D:116 Calculus IV
3 s.h.

22D:117 Introduction to Linear Algebra
3 s.h.

22D:118 Introduction to Differential Equations
3 s.h.

22D:119 Introduction to Multivariable Calculus
3 s.h.

22D:120 Introduction to Real Analysis
3 s.h.

22D:121 Introduction to Complex Analysis
3 s.h.

22D:122 Introduction to Topology
3 s.h.

22D:123 Introduction to Algebraic Geometry
3 s.h.

22D:124 Introduction to Commutative Algebra
3 s.h.

22D:125 Introduction to Algebraic Number Theory
3 s.h.

22D:126 Introduction to Algebraic Geometry II
3 s.h.

22D:127 Introduction to Algebraic Number Theory II
3 s.h.

22D:128 Introduction to Algebraic Geometry III
3 s.h.

22D:129 Introduction to Algebraic Number Theory III
3 s.h.

22D:130 Introduction to Algebraic Geometry IV
3 s.h.

22D:131 Introduction to Algebraic Number Theory IV
3 s.h.

22D:132 Introduction to Algebraic Geometry V
3 s.h.

22D:133 Introduction to Algebraic Number Theory V
3 s.h.

22D:134 Introduction to Algebraic Geometry VI
3 s.h.

22D:135 Introduction to Algebraic Number Theory VI
3 s.h.

22D:136 Introduction to Algebraic Geometry VII
3 s.h.

22D:137 Introduction to Algebraic Number Theory VII
3 s.h.

22D:138 Introduction to Algebraic Geometry VIII
3 s.h.

22D:139 Introduction to Algebraic Number Theory VIII
3 s.h.
Statistics and Actuarial Science

Undergraduate Program

Actuarial Science

This program is designed to prepare students to enter the actuarial profession. The requirements are motivated by the education and examination programs of the principal actuarial organizations. Additional courses are specified to provide the students with a general knowledge of related business topics. The required courses in the program are:

22C:7 Introduction to Computing with FORTRAN

22C:16 Introduction to Programming with Postal

22M:25-26 Calculus I-II

22M:35-36 Engineering Calculus I-II or

22M:45-46 Accelerated Calculus I-II

22M:27 Introduction to Linear Algebra

22M:28 Calculus III

or

22M:37 Engineering Calculus III

22M:39 Calculus III

or

22M:37 Engineering Calculus III

22M:55 Fundamental Properties of Spaces and Functions

22S:193 Introduction to Probability

22S:154 Introduction to Mathematical Statistics

22S:150 Methods of Statistical Inference

22S:125 Actuarial Principles of Life Insurance

22S:177 Numerical Analysis for Actuaries

22S:180-182 Actuarial Theory I-III

6S:1-2 Principles of Economics

At least two from the following:

6A:1 Introduction to Financial Accounting

6F:100 Introductory Financial Management

6F:102 General Insurance

6M:100 Introduction to Marketing

6L:47 Introduction to Law

6L:100 Administrative Management

Suggested additional courses:

22S:25 Elementary Actuarial Mathematics

(Must be taken prior to 22S:153 Introduction to Probability)

22S:183 Demography and Life Table Construction

22S:184 Risk Theory

22S:185 Theory of Pension Funding

6F:121 Property and Liability insurance

6F:122 Life and Health Insurance

6K:278 Operations Research-M.B.A.

56:170 Deterministic Operations Research

56:175 Stochastic Operations Research

It is recommended that the required and elective courses be taken in the following order. Students should note that in order to complete the program in four years, 22S:153 Introduction to Probability must be taken no later than the fall semester of the junior year.

Freshman: Fall

22M:25 Calculus I or

22M:35 Engineering Calculus I or

22M:45 Accelerated Calculus I

10:1 Rhetoric

Freshman: Spring

22M:26 Calculus II or

22M:36 Engineering Calculus II or

22M:46 Accelerated Calculus II

22S:25 Elementary Actuarial Mathematics and Statistics

10:2 Rhetoric

Sophomore: Fall

22M:27 Introduction to Linear Algebra

6S:1 Principles of Economics

22M:55 Fundamental Properties of Spaces and Functions

Sophomore: Spring

22M:28 Calculus III

or

22M:37 Engineering Calculus III

6S:2 Principles of Economics

22C:7 Introduction to Computing with FORTRAN

22C:16 Introduction to Computing with Postal

Junior: Fall

22S:153 Introduction to Probability

22S:125 Actuarial Principles of Life Insurance

22S:180 Actuarial Theory I

Junior: Spring

22S:154 Introduction to Mathematical Statistics

22S:185 Actuarial Theory II

6K:278 Operations Research-M.B.A. Business requirement

Senior: Fall

22S:182 Actuarial Theory III

22S:150 Methods of Statistical Inference

22S:177 Numerical Analysis for Actuaries Business requirement

Senior: Spring

22S:183 Demography and Life Table Construction

22S:184 Risk Theory

22S:185 Theory of Pension Funding

Applied Statistics

This program is designed to prepare the student for a career in applied statistics or for graduate study in applied statistics or a closely related discipline that incorporates statistical tools. The required courses in the program are:

22C:7 Introduction to Computing with FORTRAN

or

22C:16 Introduction to Programming with Postal

22M:25-26 Calculus I-II

or

22M:35-36 Engineering Calculus I-II

22M:45-46 Accelerated Calculus I-II

22M:27 Introduction to Linear Algebra

22S:154 Introduction to Probability

22S:177 Numerical Analysis for Actuaries

22S:185 Actuarial Theory I

6S:1 Principles of Economics

22M:55 Fundamental Properties of Spaces and Functions

Sophomore: Fall

22M:28 Calculus III

22S:153 Introduction to Probability

22S:125 Actuarial Principles of Life Insurance

22S:150 Methods of Statistical Inference

22S:177 Numerical Analysis for Actuaries

22S:180 Actuarial Theory I

22S:185 Actuarial Theory II

6K:278 Operations Research-M.B.A. Business requirement

22S:183 Demography and Life Table Construction

22S:184 Risk Theory

22S:185 Theory of Pension Funding

22S:25 Elementary Actuarial Mathematics and Statistics

10:2 Rhetoric

Sophomore: Fall

22M:27 Introduction to Linear Algebra

6S:1 Principles of Economics

22M:55 Fundamental Properties of Spaces and Functions

Sophomore: Spring

22M:28 Calculus III

or

22M:37 Engineering Calculus III

6S:2 Principles of Economics

22C:7 Introduction to Computing with FORTRAN

22C:16 Introduction to Computing with Postal

Junior: Fall

22S:153 Introduction to Probability

22S:125 Actuarial Principles of Life Insurance

22S:180 Actuarial Theory I

Junior: Spring

22S:154 Introduction to Mathematical Statistics

22S:185 Actuarial Theory II

6K:278 Operations Research-M.B.A. Business requirement

Senior: Fall

22S:182 Actuarial Theory III

22S:150 Methods of Statistical Inference

22S:177 Numerical Analysis for Actuaries Business requirement

Senior: Spring

22S:183 Demography and Life Table Construction

22S:184 Risk Theory

22S:185 Theory of Pension Funding

Applied Statistics

This program is designed to prepare the student for a career in applied statistics or for graduate study in applied statistics or a closely related discipline that incorporates statistical tools. The required courses in the program are:

22C:7 Introduction to Computing with FORTRAN

or

22C:16 Introduction to Programming with Postal

22M:25-26 Calculus I-II

or

22M:35-36 Engineering Calculus I-II

22M:45-46 Accelerated Calculus I-II

22M:27 Introduction to Linear Algebra

22S:154 Introduction to Probability

22S:177 Numerical Analysis for Actuaries

22S:185 Actuarial Theory I

6S:1 Principles of Economics

22M:55 Fundamental Properties of Spaces and Functions

Sophomore: Fall

22M:28 Calculus III

or

22M:37 Engineering Calculus III

6S:2 Principles of Economics

22C:7 Introduction to Computing with FORTRAN

22C:16 Introduction to Computing with Postal

Junior: Fall

22S:153 Introduction to Probability

22S:125 Actuarial Principles of Life Insurance

22S:180 Actuarial Theory I

Junior: Spring

22S:154 Introduction to Mathematical Statistics

22S:185 Actuarial Theory II

6K:278 Operations Research-M.B.A. Business requirement

Senior: Fall

22S:182 Actuarial Theory III

22S:150 Methods of Statistical Inference

22S:177 Numerical Analysis for Actuaries Business requirement

Senior: Spring

22S:183 Demography and Life Table Construction

22S:184 Risk Theory

22S:185 Theory of Pension Funding
Students in this program are expected to take at least two non-introductory courses in some area in which statistics is applied, for example, geography, business, or science.

Mathematical Statistics
This program is designed to prepare students for graduate study in statistics. The required courses in the program are:
- 22M:25-26 Calculus I-II
- 22M:35-36 Engineering Calculus I-II
- 22M:45-46 Accelerated Calculus I-II
- 22M:57 Introduction to Linear Algebra
- 22M:58-59 Calculus III
- 22M:56 Fundamental Properties of Spaces and Functions
- 22M:58 Introduction to Analysis I
- 22M:59 Introduction to Probability
- 22M:154 Introduction to Mathematical Statistics

and at least three from the following:
- 22M:162 Regression Analysis
- 22M:156 Applied Time Series Analysis
- 22M:158 Analysis and Design of Experiments I
- 22M:164 Introduction to Discrete Probability Models
- 22M:167 Introduction to Stochastic Processes

Students are encouraged to learn a programming language and to take at least four courses in some area where statistics is an important tool, such as economics or psychology.

Master of Science
Each M.S. candidate will have a committee of three members, which will have the responsibility of recommending action on the candidate's degree. For nonthesis programs, the committee's first recommendation is usually based on two written examinations on topics covered in the required courses. For thesis programs, the committee's first recommendation is usually 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.

A student who chooses to earn the M.S. degree with thesis must sign up to six 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)
- 22M:153 Introduction to Probability
- 22M:154 Introduction to Mathematical Statistics
- 22M:152 Methods of Statistical Inference
- 22M:125 Actuarial Principles of Life Insurance

Applicants apply in strong, a program in another department may be more appropriate, for example, educational measurement and statistics (education), operations research (industrial) and management engineering, and sociostatistics (preventive medicine and environmental health).

Applied Statistics
(with thesis)
- 22M:153 Introduction to Probability
- 22M:154 Introduction to Mathematical Statistics

At least two of these:
- 22M:152 Regression Analysis
- 22M:156 Applied Time Series Analysis
- 22M:158 Analysis and Design of Experiments I
- 22M:181 Application of Multivariate Statistical Techniques
- 22M:168 Analysis and Design of Experiments II

The remainder of the program will consist of at least two additional courses numbered 22M:133 or above, and other courses approved by the advisor. With the advisor's approval, courses in other fields related to the thesis may be substitued.

Experience in a computer language such as FORTRAN is required. If the student satisfies the requirement by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The typical thesis would be 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 three semester hours of 22M:191 individual study for two semesters.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:
- 22M:21: Analysis II
- 22M:152 Regression Analysis
- 22M:158 Analysis and Design of Experiments II
- 22M:167 Introduction to Stochastic Processes
- 22M:173 Statistical Computation and Consulting
- 22M:168 Analysis and Design of Experiments I
- 22M:191 Individual Study

The remainder of the program will consist of at least two additional courses numbered 22M:133 or above, and other courses approved by the advisor.

Experience in a computer language such as FORTRAN is required. If the student satisfies the requirement by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The applied statistics program is designed to be flexible, so that a student may concentrate on an area of application in addition to the required statistics courses. The student should work closely with his or her advisor in developing a program of study tailored to the student's specific interests, if the student's interest in a particular applications area is strong, a program in another department may be more appropriate, for example, educational measurement and statistics (education), operations research (industrial) and management engineering, and sociostatistics (preventive medicine and environmental health).
225:161 Application of Multivariate Statistical Techniques
225:168 Analysis and Design of Experiments II

At least one of the following:
225:200 Analysis of Categorical Data
225:230 Introduction to the Theory of Nonparametric Statistics

And at least two of the following:
225:256 Advanced Analysis II
225:256 Multivariate Analysis
225:250 Theory of Probability II

A well-prepared student entering with a B.S. degree would require three years of coursework to complete the program and would take 225:201, 225:202, and 225:211 in the first year. A less well-prepared student would need to take 225:153, 225:154, 225:115, and 225:116 in the first year, adding an extra year to the program. Examples of complete programs are available from the departmental secretary.

In addition, each semester a graduate student is registered for six or more semester hours, the student's registration must include at least one course of at least two semester hours offered by the Department of Statistics and Actuarial Science, other than 225:191 Individual Study, 225:197 Readings in Statistics and/or Actuarial Science, or 225:199 Reading Research.

During the graduate program, students may wish to take course work or seminars in other departments for the achievement of certain auxiliary goals of the doctoral degree in statistics—such as relating field or area of specialization to other fields or to develop the ability to use electronic computing devices or to learn the multivariate skills needed to read foreign scientific journals and be able to respond in persons contacts with foreign statisticians.

Each student is required to include in his or her program a component which involves experience in or teaching of statistics or statistical computing.

Students expecting to request financial assistance for the third year must have taken the Graduate Record Examination no later than the spring semester of the second year.

The qualifying examination covers introductory probability, mathematical statistics, and regression analysis. These topics are generally covered in 225:523, 225:524, 225:525, 225:526, and 225:527. Study guides are available from the departmental secretary. Students who are unsatisfactory in their first attempt may repeat the qualifying examination one time.

The student takes a comprehensive examination covering the content of the course work in his or her approved plan of study during the third year.

The comprehensive examination consists of a written core examination on

statistical inference, linear models, and probability. These topics are generally covered in 225:201, 225:202, 225:203, and 225:204. This is followed by an individualized examination on a topic selected by the candidate and his or her committee. The purpose of the examination is to permit the student to demonstrate an area of strength; the format is at the discretion of the student's committee. Study guides for the core examination are available from the departmental secretary.

The student must achieve at least a 3.40 grade-point average on completed courses in the plan of study.

A program which does not conform to the prescribed requirements, but which is of high excellence, may be approved by the department chair.

Special Features

Because statisticians are often teamed with other scientists in research projects, it is important that students gain experience in group efforts. In several courses, the department tries to provide this experience. In addition, the department houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in these projects is conducted by others in the department, the center also seeks involvement in larger research projects and in the writing of proposals.

Courses

Primarily for Undergraduates

No student may receive credit for a Department of Statistics and Actuarial Science course numbered below 100 after receiving credit for a Department of Statistics and Actuarial Science course numbered above 100. A student may receive credit in only one of the following courses: 225:22, 225:22, 225:102. 225:102 Statistics and Inference I

Statistical ideas and their applications in public policy, business, and the social, health, and physical sciences. Purpose is to make students critical consumers of statistical information. Prerequisite 225:17 or 225:27.

225:17 Quantitative Methods I

Correlation of 225:17. Descriptive statistics, elementary probability and random sampling, elementary probability and expectation, random variables, and their distributions, expected values and their significance, correlation, regression and simple analysis of variance. Prerequisite 225:37 or equivalent.

225:37 Elementary Statistics and Intensive Survey techniques for presenting data, descriptive statistics, elementary probability and random variable distribution models, expected values, and their significance, correlation, regression and simple analysis of variance. Prerequisite 225:37 or equivalent. Same as 225:37.

225:30 Probability and Statistics for Engineering and Physical Sciences

Finite probability models, random variables, probability distributions, continuous and discrete distributions, expectation, and central limit theorem; hypothesis testing, regression. Prerequisites: 225:37 or equivalent.

For Undergraduates and Graduates

225:200 Cooperative Education Internship

225:210 Biostatistics

Elementary course on statistical methods primarily for biologists. Emphasis will be on understanding, interpretation, and application of basic statistical concepts. Topics will include descriptive statistics and an introduction to estimation and hypothesis testing. Prerequisite: 225:37 or equivalent.

225:220 Introduction to Statistical Methods

Primarily for students who are not statistics majors. Same as 225:116.

225:2100 Genetics

Statistical methods useful in the earth sciences. Methods for analysis of variance, regression, and multivariate analysis are introduced. Data analysis using statistical computer packages. Prerequisite: one semester or equivalent. Offered spring semesters of alternate years. Same as 125:157.

225:2100 Probability and Statistics

Finite and infinite probability models, random variables, functions of random variables, expectations, covariance and cumulative distribution functions, estimation and hypothesis testing. Regression. Prerequisites: 225:37 or 225:38.

225:2100 Actuarial Principles of Life Insurance

Elements from probability and mathematical finance developed and applied to inters, and in particular to life insurance net premium, reserves, asset values, and loss reserves. Selected topics in group and health insurance. Prerequisite: 225:37 or equivalent.

225:2107 Applied Statistical Methods II

Computations

Principles of computer programming, statistical analysis of complex data sets, use of statistical computer packages. Prerequisite: 225:17 or equivalent.

225:2107 Quality Control and Engineering Statistics

Prerequisites: 225:21. Same as 58:142.

225:2108 Research Statistics I

A study of the principles of scientific research and data analysis. Same as 59:140.

225:2108 Research Statistics II

A study of the principles of scientific research and data analysis. Same as 59:143.

225:2108 Research Methods in Experimental Design

Basic concepts of experimental design. Same as 59:102-103.

225:2108 Research Methods in Business Research

Elementary descriptive methods. Same as 59:102-103.

225:2108 Intermediate Statistical Methods

Prerequisite: 225:37 or equivalent.

225:2108 Methods of Statistical Inference

Regression analysis, analysis of variance, time series methods, use of statistical computer packages. Prerequisite: 225:37 or equivalent.

225:2108 Regression Analysis

Analysis of the multiple linear regression model, matrix approach, multiple analysis of variance, selecting variables, analysis of covariance, data transformations, and use of statistical computer packages. Prerequisites: 225:37 or equivalent.

225:2108 Analysis of Variance

Analysis of variance and its applications; the general linear model, MANOVA, and ANCOVA, and its applications. Prerequisites: 225:37 or equivalent.

225:2108 Introduction to Probability

Introduction to the theory and application of probability concepts, conditional probabilities, random variables, expectations, generating functions, laws of probability models. Prerequisites: 225:37 or 225:38.

225:2108 Introduction to Mathematical Statistics

Introduction to mathematical probability, descriptive statistics, sampling, parameter estimation, statistical hypothesis testing, confidence intervals, nonparametric methods, and statistical computing. Prerequisites: 225:37 or 225:38.

225:2108 Advanced Statistical Theory and Methodology

Introduction to the theory and application of probability concepts, conditional probabilities, random variables, expectations, generating functions, laws of probability models. Prerequisites: 225:37 or 225:38.

225:2108 Applied Time Series Analysis

Generalized autoregressive moving averages and autocorrelation functions,
microbes in stabilization of the biosphere by recycling, and alleviating waste products, and the genetic and regulation of the immune response, including interactions of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biology. For the graduate with a bachelor’s degree in microbiology positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue beyond the bachelor’s degree have career opportunities in these same areas, plus college and university teaching, with greater responsibilities and commensurately higher salaries.

**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 summer session of 1984 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 24 semester hours in microbiology to obtain a B.S. degree. In both cases, no more than two semester hours of 61:157 Problems in Microbiology and one semester hour of 61:163 Seminar in Microbiology may count toward this requirement.

Students desiring to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biology, 20 semester hours of which must be in microbiology. Certification is required for employment or advancement in some areas primarily in diagnostic microbiology.

Students are permitted to take microbiology courses more advanced than 61:167 General Microbiology only if they receive a C or above in 61:157. Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades. Required courses other than microbiology courses for students who become microbiology majors prior to summer 1984 include the following:

- **4:13 Principles of Chemistry I** 3 s.h.
- **4:14 Principles of Chemistry II** 3 s.h.
- **4:16 Principles of Chemistry Lab** 1 s.h.
- **4:101 Elementary Quantitative Analysis** 4 s.h.
- **4:121 Organic Chemistry I** 3 s.h.
- **4:122 Organic Chemistry II** 3 s.h.
- **4:141 Organic Chemistry Laboratory** 3 s.h.
- **59:120 The Chemistry of Biological Materials** 3 s.h.
- **59:130 Metabolism** 3 s.h.
- **22M:15 Mathematics for the Biological Sciences** 4 s.h.
- **22M:20 Elementary Functions** 3 s.h.
- **29:11-12 College Physics** 8 s.h.
- **37:5 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 (22M:16, 22M:25, or 22M:35) must be taken rather than 22M:15 or 22M:20.

Courses mat are recommended include the following:

- **8W:10 Expository Writing** 3 s.h.
- **8W:112 Writing for the Sciences** 3 s.h.
- **22C:7 Introduction to Computing with FORTRAN** 3 s.h.
- **22C:16 Introduction to Programming with Pascal** 3 s.h.
- **22C:17 Programming Techniques and Data Structures** 3 s.h.

**Honors Program**

Open to seniors with a grade-point average of at least 3.2 overall and a 3.5 in microbiology courses. The honors program in microbiology involves taking 25 semester hours of course work in microbiology, including six semester hours in 61:171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, the student presents a written report. A student successfully completing these requirements may request the B.S. degree with honors.

**Graduate Study, Faculty Roster, Courses**

see "The College of Medicine" section of the Catalog.

**Military Science** (Army ROTC)

**Department Head:** Lieutenant Colonel Roger W. Jasmer  
**Faculty:** Professor Roger W. Jasmer (Lieutenant Colonel), Assistant Professor Colby J. Vipperman (Major), Bruce J. Davidson (Captain), Michael J. Vipperman (Captain), Barry C. Carpenter (Captain)  
**Instructor:** William A. Bailey (Maj(h)), Richard A. Chenay (SGW)

The Department of Military Science is the academic unit authorizing the Army Reserve Officers' Training Corps (ROTC) program granted by the University of Iowa. Student courses in the program are elective. Courses in the program carry credit applicable toward a degree.

The ROTC Basic Course for freshmen and sophomores provides academic instruction in military skills and fundamentals of leadership and management plus an introduction to the Army for those students considering a career in the military. American society and current military organization and capabilities, military history is highlighted in tracing the development of military principles and doctrine utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practice 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, Wa. Selected students may also participate in active Army training programs such as Ranger School, Air Assault School, Northern Warfare School, and Airborne Training.

Students who successfully complete the ROTC Advanced Course receive a commission as a second lieutenant in the U.S. Army upon graduation. They may also compete for a commission in the U.S. Army's National Guard or U.S. Army Reserve and upon graduation may be offered an active duty term of 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, or by participating in an on-campus summer enrichment program. Students who qualify may be admitted to the advanced course by taking 22B:9 Fundamentals of Military Science and Operation.

**Credit for Prior Training**

Students with prior military training or experience may qualify for Basic Course credit and be allowed entrance into the Advanced Course. Prior service personnel are given advanced placement within the ROTC program. Students are 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 four semesters with departmental approval.

**Graduate School**

Students admitted as lieutenants upon graduation from The University of Iowa only apply for a delay of entry on active duty to attend graduate school. No
additional time is required on active duty for such delays. Delayed up to three years to attend medical, dental, and law schools are normally granted.

Special Programs

The Black Berets is a fraternal organization, engaging in intercollegiate military-sciences competition for individual local and national awards. Special opportunities in advancement, athletics, and military proficiency. The department sponsors military-official ceremonial and social activities throughout the year, including the annual military ball, a formal dance called Cadet Corps Dance. and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field problems and military skills instruction. It includes a variety of military equipment, such as helicopters and FM 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 $1000 per-month tax-free subsistence allowance, are available to high school seniors and students enrolled in military science courses. Three- and two-year scholarships are also available. All cadets in the advanced course receive a bursary and a three-year tax-free subsistence allowance. Cadets attending summer camp usually go there and receive travel allowances. Students are supplied with books for University classes taught by military faculty and uniforms for training exercises. Veterans continue to draw both the ROTC allowances plus any other benefits to which they are entitled. Non-scholarship advanced course students also may participate in the Simultaneous Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $9,500.00 per year and serve as off-duty personnel at the local armory while attending the University.

Courses

2211 Introduction to the Military 3 hrs.

2415 Foundations of Military Organizations 3 hrs.

2416 Strategic and Tactical Military Analysis I 3 hrs.

2417 Military and Strategic Leadership 3 hrs.

2418 Foundations of Military Organizations 3 hrs.

2419 Small Unit Leadership 3 hrs.

2426 Leadership and Organizations 3 hrs.

2428 Law and Organizations 3 hrs.

2429 Administrative Management 3 hrs.

2545 Professional Issues in Military Science 3 hrs.

2551 Research in Military Science 3 hrs.

2552 Reading and Creative Writing 3 hrs.

2553 History of Military Science 3 hrs.

2554 Special Topics in Military Science 3 hrs.

2561 Museum Training 3 hrs.

2562 Museum Accessory Work 3 hrs.

2563 Introductory Course in Military Science and History 3 hrs.

2564 Museum Accessory Work 3 hrs.
the B.A. or B.M. requirements in music and liberal arts, certificates in music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below.

**String Majors**
- Instr: all in performance 2 s.h.
- Violin and viola majors take one year of 25:23_Cello and bass majors take one year of 25:21_Violin.
- 25:100 Cello Strings 1-2 s.h.
- 25:105 Violin and viola strings take violin and bass classes; celloists take viola and bass classes (also take viola and cello.
- 75:143 Instrumental Techniques 2 s.h.
- 25:107 Instrumental Conducting 1 s.h.
- 25:108 Instrumental Conducting II 2 s.h.
- 75:50 String Methods and Materials 4 s.h.
- 7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
- 75:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 7E:192 Laboratory Practice in the Elementary School 5 s.h.
- 7S:187 Seminar: Curriculum and Student Teaching 1 s.h.

**Brass, Woodwind, or Percussion Majors**
- Brass, woodwind, and percussion majors in music education shall participate in a concert band each semester, and in marching band for two fall semesters during the first two years of residence at the University. Students may substitute marching band program techniques for marching band, with permission of their advisor and the Director of Bands. Courses include:
- 7S:143 Instrumental Techniques 8 s.h.
- 25:107-108 Instrumental Conductor 3 s.h.
- 7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
- 7S:136 Percussion Band Instrument Care and Repair 1 s.h.
- 7S:140 Band Methods and Materials 3 s.h.
- 7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 7E:192 Laboratory Practice in the Elementary School 6 s.h.
- 7S:187 Seminar: Curriculum and Student Teaching 1 s.h.

**Vocal and Keyboard Majors**
- 7S:129 Choral Methods and Conducting 3 s.h.
- 7S:187 Seminar: Vocal Literature and Conducting 3 s.h.
- 25:115-116 Dixon for Singers I-II 4 s.h.
- 7E:145 Methods and Materials: Elementary School General Music 3 s.h.

**Keyboard Majors (Nonvocal)**
Keyboard majors who wish to take voice in the nonvocal area must complete the requirements in either the brass-woodwind-percussion or string area, and pass the proficiency examination or 25:71-72 Group Instruction in Piano I-II. Keyboard majors lacking satisfactory competence in voice also must pass 25:17 Voice for violin students.

**Teaching Minor**
A student qualifies for certification as an elementary school general music teacher by completing the approved certification program for elementary teachers and 23-23 semester hours as follows:
- 7E:119 Beginning Guitar 3 s.h.
- 7E:145 Methods and Materials: Elementary School General Music 3 s.h.
- 7E:192 Laboratory Practice in the Elementary School 5 s.h.
- Applied Music (chorus, band, or orchestra) 2 s.h.
- 25:10-25:21 Literature and Theory I-IV 3 s.h.
- 25:10 Fundamentals of Music 3 s.h.

A student who wishes to complete an area of specialization in music without teacher certification may substitute other courses for 7E:192 with the advisor’s approval.

**Music Therapy**
Admission to the program in music therapy is based on demonstrated minimum keyboard skills and successful completion of 25:11 Orientation to Music Therapy. The number of students admitted to the program is limited by the types and amounts of clinical experience available on campus. 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 and certification as a registered music therapist (RMT). For more job opportunities, students also are strongly encouraged to complete the music teacher certification requirements. Complete information on the program is available in the music education office. Course requirements for the major in music therapy are:
- 25:94 Music Therapy 1-2 s.h.
- 25:95 Recreational Music Techniques, approved 2 s.h.
- 25:11 Orientation to Music Therapy 2 s.h.
- 75:144 Psychology of Music 2 s.h.
- 7S:149 Behavioral Research in Music Therapy 2 s.h.
- 25:139 Music Therapy Teaching 2 s.h.
- 25:140 Internship in Music Therapy 3 s.h.

**Composition/Theory Major**
Students are not admitted to this program earlier than the end of the sophomore year. Upon application for admission to the program, the candidate will be assigned a faculty advisor, in consultation with whom a course of study leading to the degree will be determined. Admission is based on achievement in composition and/or theory.

Keyboard proficiency and recital attendance requirements are those of the B.M. degree; course requirements are those of the B.M. degree plus an additional eight semester hours or theory courses.

The thesis replaces the senior recital required of applied music majors, and consists of one or more original compositions to be performed by the Composition/Theory faculty and presented to a regularly scheduled School of Music recital, and/or a faculty-approved scholarly paper dealing with theoretical issues.

Until admitted to the Composition/Theory Program, candidates must take private lessons in voice or on an or her major instrument. Following admission, the student undertakes applied music study as recommended by the advisor.

Ensemble participation is that required of the B.M. candidate.

**Honor**
A student with junior or senior standing may undertake honor work in music with the approval of the director of the College of Liberal Arts Honors Program, and provided a School of Music faculty member sponsors the student a honors status and the student has maintained a minimum grade point average of 3.2 on all previous work undertaken at the University.

A student maintaining the minimum a average qualifies for graduation "with honors" by completing satisfactorily from six to eight semester hours in 25:97
Honors in Music. Types of honors projects for which credit is given are: 25:97 and honors performances, and/or: 25:97 honors composition, orchestrations, arrangements, and honors essays, research papers, and/or theses, translations, etc. A combination of at least two of these types of projects is required. None of the projects may be given project assignments in other courses or required for graduation, such as: 25:344 Senior Recital. 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 of at least three faculty members is appointed by the honors program to evaluate the student's work.

Financial Aid
A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Graduate Programs
The entering graduate student must take the School of Music advisory examination in music theory (history, ear training, forms, and cross-purposes); and the history of literature, before his or her first registration. The advisory examination is given each session on the two days (excluding Sunday) before registration. A booklet describing the general content of these tests may be obtained in the office, School of Music. For graduate and general admission, degree, and examination requirements, see the "Graduate College" section of the Catalogue.

Theory Minor
Candidates for graduate degrees in music may elect a minor in music theory. The following courses may be taken in this major:

25:145 Contrapuntal Forms 3 s.h.
25:147 Tonal Forms (unless excused by advisor's exam) 3 s.h.
25:234 Observation and Practice Teaching in Theory 1-2 s.h.
25:236 Method and Technique of Teaching in Theory 2 s.h.
plus two courses from the following:
25:148 Analysis of Music Literature 1600-1750 3 s.h.
25:149 Analysis of Music Literature 1750-1825 3 s.h.
25:150 Analysis of Music Literature 1825-1880 3 s.h.
25:151 Analysis of Music Literature 1880-1915 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.

Master of Arts
The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and musicology. The Master of Arts without thesis is offered in the areas of music education and entrance to vocal pedagogy (including accompanying). Both require a minimum of 30 post-baccalaureate semester hours. Information about specific examination and curricular requirements for each degree is available from the School of Music. All curricula must include the requirements listed below:

General:
25:131 Introduction to Graduate Study in Music
26:243 Introduction to Contemporary Analysis and Theory 3 h.s.
25:11 Review Theory as determined by advisory exam.

Music History:
25:301-302 Advanced History and Literature of Music I and II or equivalent, or satisfactory advisory examination score.

Ensemble Participation
Students shall participate in a major ensemble each semester of residence (see previous list of the major ensembles). During the summer term, students shall be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and the ensemble director. Keyboard majors may substitute accompaniment for participation in a major ensemble at the director's discretion. Theory, composition, musicology, and music education majors may, with their advisor's permission, substitute other ensemble roles. Any requests for adjustments of the requirement must be submitted in writing to a reviewing committee consisting of the ensemble directors, the advisor, the major teacher, and a representative from the Director's Office. This committee will meet regularly at the end of each regular evaluation period.

Admission
Before an applicant will be considered for admission, he or she must have submitted supporting materials in his or her indicated area of concentration, as follows:

Composition—representative musical scores
Theory—analysis or research papers
Music education—no materials required
Performance (including conducting)—audition
Musicology—research papers, theses
Pedagogy—contact School of Music

Information about specific examination 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 the area of composition, instrumental 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 also present at least two full-length recitals or programs (25-423 M.F.A. Thesis), for which a maximum of eight semester hours of credit will be granted. The student may earn a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree must be met separately, excluding two final examinations, with a minimum combined total of 60 semester hours of graduate credit. (See the "Graduate College" section of the Catalogue for further details.)

Doctoral Degrees
General Requirements
All doctorate study in music includes:

Minimum course requirements listed under the M.A. degree:
One or more additional electives from the analytical studies sequence 25:148-152 or equivalent.
One or more additional courses in the history of music known from those listed in the master's degree requirement 25:295 Musical Acoustics or equivalent.

Reading proficiency in at least one foreign language (must be completed before comprehensive examination; music education students may substitute courses in statistics for this requirement)

and Dissertation
Doctoral students shall be available for participation in the major ensembles during each term of registration unless excused by their advisors (see previous list of major ensembles). During the summer term, students shall be available for ensemble participation as needed. Keyboard majors may substitute a 3-semester course in the major area of specialization in place of a major
ensemble, at the discretion of their advisers.

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 have already achieved a professional level of musical performance. The student is required to audition in his or her major performance area.

Information about specific admission and curricular requirements for each area is available from the department'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 concert 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 programs.

D.M.A. candidates must also give evidence of their ability to make a scholarly investigation of limited scope by means of a written essay.

Admission
Before an applicant will be considered for admission to a doctoral program, he or she must have submitted supporting materials in his or her indicated area of concentration, as follows:

1. Composition—representative musical scores
2. Theoretical analyses or research papers
3. Music education—research papers
4. Music literature—research papers and auditions
5. Performance (including conducting)—audition
6. 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 have an interested and serious interest in it include 25:134.1-2, Masterpieces of Music; 25:139 Late Eighteenth- and Nineteenth-Century Composers; 25:140 Early Eighteenth- and Twentieth-Century Composers; the sequence 25:150-154 World Music, I-VI; for students interested in non-Western music; and 25:10 Fundamentals of Music 25:154. Beginning Guitar is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment. Participation in School of Music classes is open to all interested 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 provides an environment for innovative composition and performance of new works. Its repertoire includes works by known young composers and works being electronically produced. The center's basic purpose is to encourage talented youth, artists to develop their creative skills through multimedia and interdisciplinary classes, projects, and performances.

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 all small and seminar rooms, the Music Building includes 75 teaching studios, 75 practice rooms, a large library, two electronic music laboratories, ear training and testing facilities with 50 listening posts, four large rehearsal halls, ample solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with six terminals and five microcomputers, eight practice and recital rooms, and the 720-seat Clapp Recital Hall. Harcher Auditorium seats 2,864 people for concerts, 2,400 for operas and other stage productions.

Library resources include more than 55,000 volumes of music and books, more than 2,200 reels of microfilm, a microcard file of approximately 200 titles, nearly 10,000 LP records, and 200 periodicals in several languages. The acquisition program gives particular attention to a strong reference collection, emphasizing resources for musical research and performance. The library's quarters in the Music Building provide 24 study carrels, a microreader room, a typing room, a seminar and rare books room, a large reading area, and a separate area for the Geierman Band Library, one of the world's most famous collections of band music.

Courses General
25:10 Masterpieces of Music 2-4 s.h.
25:134 Fundamentals of Music 1 s.h.
25:154 Theory and Composition 3 s.h.
25:154 Composition 3 s.h.
25:154 Technique and Analysis 2 s.h.
25:150 World Music 1 s.h.
25:154 Seminar in Musical Analysis 2 s.h.
25:216 Composition I 3 s.h.
25:217 Composition II 3 s.h.
25:218 Composition III 3 s.h.
25:219 Composition IV 3 s.h.
25:220 Composition V 3 s.h.
25:221 Composition VI 3 s.h.
25:222 Composition VII 3 s.h.
25:223 Composition VIII 3 s.h.
25:224 Composition IX 3 s.h.
25:225 Composition X 3 s.h.
25:226 Composition XI 3 s.h.
25:227 Composition XII 3 s.h.
25:228 Composition XIII 3 s.h.
25:229 Composition XIV 3 s.h.
25:230 Composition XV 3 s.h.
25:231 Composition XVI 3 s.h.
25:232 Composition XVII 3 s.h.
25:233 Composition XVIII 3 s.h.
25:234 Composition XIX 3 s.h.
25:235 Composition XX 3 s.h.
25:236 Composition XXI 3 s.h.
25:237 Composition XXII 3 s.h.
25:238 Composition XXIII 3 s.h.
25:239 Composition XXIV 3 s.h.
25:240 Composition XXV 3 s.h.
25:241 Composition XXVI 3 s.h.
25:242 Composition XXVII 3 s.h.
25:243 Composition XXVIII 3 s.h.
25:244 Composition XXIX 3 s.h.
25:245 Composition XXX 3 s.h.
25:246 Composition XXXI 3 s.h.
25:247 Composition XXXII 3 s.h.
25:248 Composition XXXIII 3 s.h.
25:249 Composition XXXIV 3 s.h.
25:250 Composition XXXV 3 s.h.
60:4000 Special Topics 1-4 s.h.
Graduate Major

2510 Music 0.5 s.h.
2512 Piano 0.5 s.h.
2514 Organ 0.5 s.h.
2516 Violin 0.5 s.h.
2518 Viola 0.5 s.h.
2520 Cello 0.5 s.h.
2522 String bass 0.5 s.h.
2524 French horn 0.5 s.h.
2526 Trumpet 0.5 s.h.
2528 Trombone 0.5 s.h.
2530 Tubas 0.5 s.h.

Graduate Non-Major

2510 Music 0.5 s.h.
2512 Piano 0.5 s.h.
2514 Organ 0.5 s.h.
2516 Violin 0.5 s.h.
2518 Viola 0.5 s.h.
2520 Cello 0.5 s.h.
2522 String bass 0.5 s.h.
2524 French horn 0.5 s.h.
2526 Trumpet 0.5 s.h.
2528 Trombone 0.5 s.h.

Undergraduate Non-Major

2510 Music 0.5 s.h.
2512 Piano 0.5 s.h.
2514 Organ 0.5 s.h.
2516 Violin 0.5 s.h.
2518 Viola 0.5 s.h.
2520 Cello 0.5 s.h.
2522 String bass 0.5 s.h.
2524 French horn 0.5 s.h.
2526 Trumpet 0.5 s.h.
2528 Trombone 0.5 s.h.
2530 Tubas 0.5 s.h.

Ensembles

No fee is charged for ensemble courses. Courses may be repeated. Prerequisite: consent of instructor.

25119 Orchestra 0.5 s.h.
25121 Wind Ensemble 0.5 s.h.
25122 Symphonic Band 0.5 s.h.
25130 Percussion Ensemble 0.5 s.h.

25119 Orchestra 0.5 s.h.
25121 Wind Ensemble 0.5 s.h.
25122 Symphonic Band 0.5 s.h.
25130 Percussion Ensemble 0.5 s.h.

25119 Orchestra 0.5 s.h.
25121 Wind Ensemble 0.5 s.h.
25122 Symphonic Band 0.5 s.h.
25130 Percussion Ensemble 0.5 s.h.

25119 Orchestra 0.5 s.h.
25121 Wind Ensemble 0.5 s.h.
25122 Symphonic Band 0.5 s.h.
25130 Percussion Ensemble 0.5 s.h.

25119 Orchestra 0.5 s.h.
25121 Wind Ensemble 0.5 s.h.
25122 Symphonic Band 0.5 s.h.
25130 Percussion Ensemble 0.5 s.h.

25119 Orchestra 0.5 s.h.
25121 Wind Ensemble 0.5 s.h.
25122 Symphonic Band 0.5 s.h.
25130 Percussion Ensemble 0.5 s.h.
Honors
The department administers an honors program for undergraduate students of superior ability. A grade-point average of at least 3.2 is required for admission to the program. A student who is interested in the program should consult the adviser for undergraduate majors in philosophy.

Graduate Program
The graduate program in philosophy is designed to train teachers and scholars in philosophy. The major areas in the graduate curriculum 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 of graduate credit and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. The student must pass an oral final examination. There is no foreign language requirement.

Doctor of Philosophy
The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time the dissertation is finished. Candidacy for the doctoral program is determined by a faculty examination taken by the last faculty of the department. Usually after the student has completed the minimum requirements for graduation in residence. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. The student must also pass a written comprehensive examination consisting of a dissertation area examination, a special area examination, and a prospectus of the dissertation. The comprehensive examination may be taken only after the student has shown competence in French, German, Greek, or Latin.

Courses
Undergraduates Only
28.1 Principles of Mind-Reasoning 2 s.h.
Philosophical study of ethical theories and their relation to decision making.
28.2 Problems of Political Philosophy 2 s.h.
Philosophical study of the state and the state of the individual in society.
28.3 Philosophy of Nature 4 s.h.
Philosophical and historical treatment of recent elements of natural science, particularly in the fields of biology, physics, mathematics, and philosophy. May be repeated for credit.
28.4 Philosophy and Nature 4 s.h.
Philosophical and historical treatment of classical theories of human nature and the relation of society, knowledge, science, and freedom. May be taken twice or at 26.43.
28.5 Principles of Reasoning 3 s.h.
An introductory study of logic and its applications.
28.6 Introduction to Philosophy 3 s.h.
An introductory study of fundamental issues and arguments in philosophy.
Undergraduates and Graduates
28.9 Introduction to Ethics 3 s.h.
Analytical and historical introduction to ethical theory.
28.10 Introduction to Symbolic Logic 2 s.h.
Main ideas and basic techniques of modern logic.
28.11 Introduction to Philosophy of Science 3 s.h.
Main issues in contemporary philosophy of science.
28.12 Analytical Philosophy 3 s.h.
Main trends and major figures in the analytic tradition.
28.13 Medieval Philosophy 3 s.h.
Main trends and major figures in late medieval philosophy.
28.15 Seventeenth-Century Philosophy 3 s.h.
Main trends and major figures from Descartes to Leibniz.
28.16 Eighteenth-Century Philosophy 3 s.h.
Main trends and major figures of eighteenth-century philosophy.
28.17 Nineteenth-Century Philosophy 3 s.h.
Main trends and major figures of nineteenth-century philosophy.
28.18 Twentieth-Century Philosophy 3 s.h.
Main trends and major figures of twentieth-century analytic philosophy.
28.19 Nineteenth-Century Philosophy 3 s.h.
Main trends and major figures such as James and Dewey.
28.21 Ethics 3 s.h.
Major problems in philosophy of the arts.
28.22 Political Philosophy 3 s.h.
Major problems in political philosophy.
28.23 Philosophy of History 3 s.h.
Major problems in philosophy of history.
28.24 Philosophy of Religion 3 s.h.
Major problems in philosophy of religion. Same as 22.146.
28.25 Philosophy of Law 3 s.h.
Philosophical study of the foundations of legal systems and the theory of law and morality.
28.26 Philosophy of Literature 3 s.h.
Philosophical study of the foundations of literary theory.
28.27 Existentialism, Marxism 3 s.h.
Main ideas of existentialism, Marxism, and modernity. May be repeated for credit.
28.28 Buddhist Philosophy 3 s.h.
An introduction to the ideas of Buddhist philosophy.
28.29 Undergraduate Seminar in Philosophy 1 s.h.
Seminar, open to all students of philosophy. May be repeated.

Primary for Graduates
28.31 Mathematical Logic 3 s.h.
Main themes and techniques of mathematical logic. Open to undergraduates with consent of instructor.
28.32 Philosophy of the Human Sciences 3 s.h.
Explanation and understanding, theory and evidence, values and ideology, freedom and causality. Open to undergraduates with consent of instructor.
28.35 Philosophy of Science 3 s.h.
Major topics in the philosophy of science. Open to undergraduates with consent of instructor.
28.37 Seminar in Metaphysics 3 s.h.
May be repeated.
28.38 Seminar in Epistemology 3 s.h.
May be repeated.
Physical Education/LIBERAL ARTS

Physical Education

Department Chair: Dave M. Asprey

Faculty: professors Dave M. Asprey, Frank R. Cassidy, Gary W. Guad, Gary O. Hay, Jerry A. Haynor, Charles W. Johnson

associate professors Gary T. Harnes, David K. Leslie, Richard Henderson, Don J. Ortiz, Dave McCutcheon, Artur J. Wensel

assistant professors Douglas D. Larson, Joanne Callister, Derek T. Foster, Mark Haggard, Mark A. Johnson, Debby B. Miller, Ober S. Pahlow, Warren G. Skiles, Theodore S. Vanhove, and Sandy F. Wray

Undergraduate Programs

Programs for the Bachelor of Science degree prepare students for advanced study in physical education, teaching physical education, and coaching athletic teams, and careers in business and professional enterprises. In addition, the department has a Bachelor of Science degree in Exercise Science. Subject to approval by the Bachelor of Science, program requirements will be available.

Bachelor of Science in Physical Education

Core requirements include:

2711 Orientation to Physical Education

7.53 Human Anatomy 3 s.h.
2103 Administration and Curriculum in Physical Education 3 s.h.
27105 Physical Education for Special Students 3 s.h.
27107 Biomechanics of Physical Education 3 s.h.
27109 Psychology of Motor Skills 3 s.h.
27200 Physical Education for Women 2 s.h.
27110 Growth and Development 2 s.h.
27120 Human Physiology 3 s.h.
28142 Contemporary Issues in Health Education 3 s.h.

Skill requirements:

A skill component in physical education of eight semester hours of course work. The areas included within the skill component are aquatic programs, physical fitness, individual sports, racket sports, recreation sports, rhythm and dance, team sports, and outdoor activities.

The courses include:

27121 Skill Component in Physical Education I 2 s.h.
2722 Skill Component in Physical Education I 2 s.h.
2723 Skill Component in Physical Education II 2 s.h.

Bachelor of Science in Teaching

Program requirements include:

Successful completion of the core requirements and the skill requirements listed for the Bachelor of Science in Physical Education and the courses required for teaching certification in physical education. These include:

76.72 Methods and Materials in Elementary School Physical Education 2 s.h.
77.73 Educational Psychology and Measurement 3 s.h.
76.91 Introduction to Teaching 1-3 s.h.
76.92 Introduction to Micro-Computing for Teachers 3 s.h.
76.100 Issues in Education 2 s.h.
76.146 Methods in Secondary Physical Education 3 s.h.
76.115 Human Relations for the Classroom Teacher 3 s.h.
76.157 Seminar: Curriculum and Student Teaching 1-3 s.h.
76.191 Observation and Laboratory Practicum in the Secondary School 1 s.h.
76.160 Laboratory Practicum in Elementary School 3 s.h.

Bachelor of Science in Physical Education (Alternative Careers Education)

Program requirements include:

2711 Orientation to Physical Education 2 s.h.
27212.23 Skill Component in Physical Education: All 3 s.h.
2753 Human Anatomy 2-3 s.h.
27.56 First Aid or Red Cross First Aid/CPR Certification in Cardiopulmonary Resuscitation 3 s.h.
Endorsement for Coaching
The Iowa Department of Public Instruction has provided for the endorsement of certified teachers for the coaching of athletic teams in schools. This endorsement is intended for teachers who have major in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement permit the teacher to teach physical education classes in public schools.
Certification for coaching athletic teams at the junior high and secondary school levels requires satisfactory completion of the following courses:
27-53 Human Anatomy 2 s.h.
27-56 First Aid 2 s.h.
27-57 Introduction to Physical Training 2 s.h.
27-141 Elementary Exercise 2 s.h.
27-187 Physical Education 2 s.h.
27-188 Psychology of Sport 2 s.h.

Endorsement for Athletic Training
This endorsement is provided for students who want to be certified as trainers for athletic teams at the professional level, the secondary school level is a part of their regular teaching duties, or at the college and university levels. The requirements designed to meet the standards for certification set by the National Athletic Trainers Association include:
17-41 Food, Nutrition, and You 3 s.h.
31-101 Educational Psychology 2 s.h.
12-130 Human Anatomy 4 s.h.
52-120 Human Anatomy 4 s.h.
27-105 Physical Education for Special Students 3 s.h.
27-107 Biomechanics of Physical Education 3 s.h.
27-108 Teaching Motor Skills 3 s.h.
27-137 Administration of Athletics 2 s.h.
27-141 Elementary Exercise 2 s.h.
27-171 Medical Supervision of Athletics 2 s.h.
27-182 Clinical Sciences in Athletic Training I 2 s.h.
27-183 Clinical Sciences in Athletic Training II 3 s.h.
27-184 A Seminar in Athletic Training 3 s.h.
The curriculum also includes selected courses in mathematics, chemistry, physics, and the biological sciences.

Graduate Programs
Master of Arts with Thesis
The program leading to the M.A. degree with thesis is designed as a terminal unit of advanced study for teachers of basic physical education and for athletics coaches. Emphasis is placed on the application of research findings to the organization, teaching, and evaluation of basic physical education programs for all students in schools and colleges, and to the coaching of interscholastic and intercollegiate athletic teams. The program focuses on problems associated with teaching and coaching in public schools and community colleges in Iowa.

Master of Arts with Thesis
The program leading to the M.A. degree in coaching education puts particular emphasis on techniques of research and on problems related to physical education and athletics. Students receive an introduction to the nature and extent of research in all areas of physical education, and have an opportunity for some specialization in an area of particular interest to them.

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 for a particular candidate depends in large measure on the area in which the candidate intends to specialize for the Ph.D. Specific courses in mathematics, chemistry, physical, zoology, psychology, or psychology are required for certain areas of specialization. The selection of such courses must be approved by the professor in charge of the area of emphasis selected by the candidate, and by the candidate's advisor.

Candidates who intend to terminate their graduate study with the M.A. degree with thesis should arrange to undertake major in physical education.

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

Two courses outside the area of specialization, from the following:
27-153 Advanced Anatomy and Physiology 2 s.h.
27-154 Physiology of Exercise Laboratory 2 s.h.
27-205 Adapted Physical Education: Special Topics and Research 3 s.h.
27-242 Supervision of Physical Education 3 s.h.
27-257 Biomechanics of Human Motion 4 s.h.
27-291 Advanced Measurement and Evaluation in Physical Education 3 s.h.
27-308 Human Perceptual-Motor Performance 3 s.h.
27.337 Seminar: Research in Physical Education Curriculum 3 s.h.

These tools of research:

7P:143 Introduction to Statistical Methods 3 s.h.
or
63:161 Introduction to Biostatistics 3 s.h.

22C:100 Introduction to Computing with FORTRAN 3 s.h.
or
7P:246 Data Processing Specialization Area 3 s.h.

27:401 Seminar in Scientific Writing 1 s.h.

27:404 Thesis: M.A. 4 s.h.

Courses approved by advisor 5-7 s.h.

Electives 4-5 s.h.

Total 30 s.h.

Doctor of Philosophy

A Ph.D. candidate 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 knowledge in depth in at least one area of specialization in physical education.

The areas of specialization offered in physical education are adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, 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. The candidate must complete at least 30 semester hours of graduate study in the specialization of his or her choice, make a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Most of the courses in the areas of specialization are offered by departments other than the Department of Physical Education—Field House. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees, and present their research in the form of a paper at the national excavation in which the candidate defends his or her thesis.

In addition to writing a comprehensive examination in physical education, the candidate specializing in exercise physiology writes a comprehensive examination prepared and evaluated by faculty members of the Department of Physical Education, who are members of the College of Medicine. Such candidates graduate with minors in physiology.

The Ph.D. core requirements include:

27:405 Thesis: Ph.D. 12 s.h.

7P:342 Selected Applications of Statistical Techniques 3 s.h.
or
7P:343 Intermediate Statistical Methods 3 s.h.
or
63:162 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.

27:202 Practicum in College Teaching 3 s.h.

The foreign language requirement differs for each area of specialization. All candidates not required to demonstrate proficiency in a foreign language must satisfactorily complete 7P:246 Data Processing or 22C:100 introduction to Computing with FORTRAN.

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

Adapted Physical Education

70:130 Exceptional Persons 3 s.h.

70:201 Research 3-6 s.h.

70:205 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

72:212 Division of Physical Education 3 s.h.

72:301 Foundations of School Administration 3 s.h.

72:201 Research 3-6 s.h.

72:205 Advanced Administration of Physical Education 3 s.h.

72:207 Advanced Administration of Athletics 3 s.h.

Anatomy

60:203 Gross Human Anatomy for Graduate Students 8 s.h.

60:108 Human Anatomy 4 s.h.

60:109 Human Anatomy and Neuroanatomy 4 s.h.

57:112 Cell, Tissue, and Organ Biology 5 s.h.

72:153 Advanced Anatomy and Kinesiology 5 s.h.

72:205 Electromyography in Kinesiology and Biomechanics 3 s.h.

Biomechanics

58:100 Readings in Mechanical Engineering 5 s.h.

(Disposable mechanics of Rattles, transfer processes, and deformable bodies) 5 s.h.

51:150 Intermediate Dynamics 3 s.h.

51:150 Biomechanics 3 s.h.

60:108 Human Anatomy 4 s.h.

72:202 Practicum in College Teaching 2-4 s.h.

7:24:20 Electromyography in Kinesiology and Biomechanics 3 s.h.

27:537 Research Techniques in Biomechanics 4 s.h.

Curriculum in Physical Education

7E:300 Design and Organization of Curriculum 3 s.h.

7S:291 Secondary School Methods 3 s.h.

7P:181 Introduction to Theories of Learning 3 s.h.

27:202 Research 3 s.h.

27:338 Seminar: Models and Theory in Curriculum 2 s.h.

28:243 Philosophical Bases of Curriculum Construction 3 s.h.

Exercise Physiology

37:112 Cell, Tissue, and Organ Biology 5 s.h.
or
60:205 General Physiology for Graduate Students 5 s.h.

37:152 Endocrinology Laboratory 2 s.h.

71:105 Pharmacology for Health Sciences 5 s.h.

27:302 Physiology of Exercise Laboratory 2 s.h.

72:212 Medical Design of Exercise 8 s.h.

72:234 Exercise Physiology Seminar 5 s.h.

27:303 Advanced Exercise Physiology Laboratory 4 s.h.

65:130 Metabolism 3 s.h.

Measurement and Evaluation

7P:243 Intermediate Statistical Methods and
7P:244 Correlation and Regression 3 s.h.

225:153 Introduction to Evaluation 3 s.h.

225:154 Introduction to Mathematical Statistics I 3 s.h.

7P:246 Design of Experiments 4 s.h.

72:202 General and Use of Evaluation Instruments 3 s.h.

72:207 General Measurement and Evaluation 3 s.h.

27:367 Seminar: Research in Measurement and Evaluation in Physical Education 3 s.h.

Motor Behavior and Learning

27:312 Selected Issues in Motor Information Processing and Motor Control 6 s.h.

27:314 Seminar in Motor Behavior Research 3 s.h.

27:315 Seminar in Neurophysiology 3 s.h.

60:110 Medical Neuroanatomy 3 s.h.

75:280 Central Nervous System Physiology 5 s.h.

20:157 Evaluation of Selected Neurological Disorders 1 s.h.

101:212 Medical Instrumentation 5 s.h.

These courses, on a graduate-level seminar, must be selected from the Department of Psychology in any combination of the following areas: memory, information processing, perception, neurophysiology, mathematical psychology, and child development.
Therapeutics
All Students
101:214 Advanced Seminar in Physical Therapy
arr.
101:325 Analyses of Scientific Literature 2 s.h.
101:307 Research in Therapeutics 3 s.h.
101:280 Teaching Practicum or
101:282 Clinical Educational Practicum 3 s.h.
101:284 Practicum in Research arr.
79:262 Facilitating Learning in Health Sciences Education 3 s.h.
101:214 Advanced Seminar in Physical Therapy 3 s.h.
101:277 Research in Therapeutics 3 s.h.
101:326 Analysis of Scientific Literature 2 s.h.
101:280 Teaching Practicum or
101:282 Clinical Educational Practicum 3 s.h.
or
101:284 Practicum in Research 3 s.h.
79:262 Facilitating Learning in Health Sciences Education 3 s.h.
Cardiovascular and Pulmonary Emphasis
72:217 Medical Physiology 6 s.h.
72:274 Exercise Physiology Seminar 2 s.h.
72:290 Special Topics arr.
99:130 Metabolism 3 s.h.
and 99:120 The Chemistry of Nutritive Value 3 s.h.
or
99:182 Biochemistry for Medical Students 6 s.h.
Musculoskeletal Emphasis
37:181 Neurophysiology 3 s.h.
72:281 Physiology of Muscle 2 s.h.
101:265 Electromyography in Kinesiology and Biomechanics 3 s.h.
60:205 General Histology for Musculoskeletal Students 5 s.h.
or
52:190 Reading Course in Civil and Environmental Engineering 5 s.h.
Neuromuscular Emphasis
60:110 Medical Neuroanatomy 3 s.h.
72:262 Central Nervous System Physiology 2 s.h.
101:265 Electromyography in Kinesiology and Biomechanics 3 s.h.
37:180 Introduction to the Neurosciences 3 s.h.
37:181 Neurophysiology 3 s.h.
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 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 undertaken.
For admission to the Ph.D. program in therapeutics, the applicant must be a graduate of an approved professional program in physical therapy, must hold a master’s degree, and must have had calculus. (Note: The master’s degree, need not be in physical therapy.) Program entry is limited to the fall semester. Deadlines for receipt of applications for admission are February 15 for notification by April 1 and May 15 for notification by July 1.
Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education skills program, in the undergraduate and graduate instructional programs, and for undergraduate participation in intramural sports, recreational activities, and athletics.
Research laboratories for physiology of exercise, stress, motor behavior, and biomechanics are located in the Field House and provide excellent facilities for instruction and research at both the undergraduate and graduate levels.
Because of our cooperative efforts with other departments to facilitate specialization, physical education students may elect additional special facilities in other departments on the campus.
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79:262 Facilitating Learning in Health Sciences Education 3 s.h.
Cardiovascular and Pulmonary Emphasis
72:217 Medical Physiology 6 s.h.
72:274 Exercise Physiology Seminar 2 s.h.
72:290 Special Topics arr.
99:130 Metabolism 3 s.h.
and 99:120 The Chemistry of Nutritive Value 3 s.h.
or
99:182 Biochemistry for Medical Students 6 s.h.
Musculoskeletal Emphasis
37:181 Neurophysiology 3 s.h.
72:281 Physiology of Muscle 2 s.h.
101:265 Electromyography in Kinesiology and Biomechanics 3 s.h.
60:205 General Histology for Musculoskeletal Students 5 s.h.
or
52:190 Reading Course in Civil and Environmental Engineering 5 s.h.
Neuromuscular Emphasis
60:110 Medical Neuroanatomy 3 s.h.
72:262 Central Nervous System Physiology 2 s.h.
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21.137 Administration of Athletics
Offered spring semesters.
21.141 Elementary Exercise Physiology
Offered fall semesters. Prerequisite: 70.130
21.147 Knowledge and Performance Tests in Physical Education
Offered fall semesters.
21.148 Psychology of Sport
3 s.h.
Psychological principles and manipulation of application to sport. Offered summer sessions.
21.212 Advanced Anatomy and Kinesiology
3 s.h.
Emphasis for applications for teaching anatomy and kinesiology at the undergraduate level. Offered spring semester.
21.215 Sports and Movement for Drones
May be for all semesters.
21.216 The Qualitative Analysis of Human Motion
Prerequisite: 21.107. Offered summer sessions.
21.268 Physical Education for Elementary Schools
Offered fall semesters. Same as 70.146.
21.269 Measurement and Evaluation in Physical Education
Offered spring semesters. Prerequisite: 21.147.
21.271 Medical Supervision of Athletics
Offered spring semesters.
21.272 Clinical Sciences in Athletic Training
Offered fall semesters. Prerequisite: 21.271.
21.273 Clinical Sciences in Athletic Training I
Offered spring semesters. Prerequisite: 21.146.
21.285 Seminar in Athletic Training
Offered fall semesters.

Primarily for Graduates
21.290 Problems
Ex. credit. Consent required. Must be taken before registering.
21.292 Pedagogy in College Teaching
...4 s.h.
21.293 Applied Physical Education: Special Topics and Projects
...4 s.h.
21.298 Tracking the Powers on the Mind
4 s.h.
Exploration of the self and the self's relationship to lead self through a series of self-intensification exercises.
21.299 Advanced Administration of Physical Education
Offered fall semesters.
21.327 Advanced Administration of Athletics
Offered fall semesters.
21.328 Principles of Physical Education
Offered spring semesters. Same as 70.227, 72.248.
21.340 Professional Preparation in Physical Education
2 s.h.
21.341 Scientific Principles of Physical Conditioning
1 s.h.
Offered summer sessions. Prerequisite: 72.135 or 72.141.
21.342 Supervision of Physical Education
3 s.h.
Offered fall semesters. Same as 70.292, 70.293.
21.353 Laboratory in Advanced Anatomy
5 s.h.
21.357 Biomathematics of Human Motion
Offered spring semesters. Prerequisite: 21.187.
21.358 Seminar: Current Developments in Biomathematics
5 s.h.
21.360 Advanced Measurement and Evaluation in Physical Education
3 s.h.
Offered spring semesters.
21.365 Electrophysiology in Kinesiology and Biomathematics
3 s.h.
Introduction to electromyographic techniques for the study of muscle activity in human motion. Offered spring semesters. Same as 101.255.
21.367 Electrophysiology of Exercise Laboratory
Offered fall semesters.
21.382 Physiology of Exercise Laboratory
Offered fall semesters.
21.383 Advanced Exercise Physiology Laboratory
Offered spring semesters.
21.386 Human Treadmill Performance Test
3 s.h.
Motor learning principles and practical implications for teaching, offered to seniors.
21.411 Education in Graduate Study
3 s.h.
Offered fall semesters.
21.412 Scientific Issues in Information Processing and in Motor Control
Evolution of research Korean in motor learning and information processing. Offered spring semesters.
21.431 Seminar in Motor Behavior Research
Offered spring semesters.
21.433 Seminar in Physical Education Curriculum
Students who have not completed 27.207 or equivalent must enroll in 27.207. Offered fall semesters.
21.438 Seminar: Models and Theory in Curriculum
Offered fall semesters.
21.439 Research Techniques in Behavioral Analysis of Motor Behavior
Offered spring semesters.
21.440 Seminar: Research in Measurement and Evaluation in Physical Education
Offered fall semesters.
21.445 Research Methods in Physical Education
2 s.h.
21.446 Thesis: M.A.
9-14 s.h.
21.450 Thesis: B.A.
1 s.h.
Not to exceed 12 semester hours.

Physical Education and Dance
Chair: N. Peggy Burke
21.156 Physical Education: General Education: Physical Education
...5 s.h.
professors emeritus Margaret G. Fox, M. Gladys Smith, Judy J. Allen, Susan Satterfield, Alida A. Menashe, N. Peggy Burke, Claire L. Low, Christine H. Brown, Francesca Manwell, Jane A. Scott, Victoria L. Smart, Christine J. Pomerleau, Dale Lane, Martha Lane, Kenneth Flanagan in instruction Katherine M. Carlson, Dawn P. Patten, Thomas D. Craven, Desiree C. Coster, Judy Login, Alveda M. Holstein, Kathy Janis, Philip Kopec, Virginia Poms, Stephen D. Stewart, Carol A. Somers, Dawn M. Thompson 

The Department of Physical Education and Dance offers bachelor's degree programs with emphasis 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:

Physical Education Undergraduate Programs
Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clubs, sport specialist and sports marketing, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, kinematics, physiology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare the student for graduate work in physical education.

(See "Graduate Programs" for areas of specialization)

The student who plans to teach must meet certification requirements. The "College of Education" section of the Catalog, must maintain at least a 2.3 grade-point average, and must demonstrate competence for teaching and/or leadership roles.

The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree.

The program are as follows:

Teaching Education Program in Physical Education
Physical Education Requirements
21.130 Orientation to Physical Education or Dance 0-1 s.h.
21.111 Orientation to Physical Education 0-1 s.h.
21.327 Advanced First Aid and CPR (or Red Cross First Aid) 2 s.h.
21.380 Anatomy 3 s.h.
21.383 Human Anatomy 3 s.h.
21.417 Biomechanics of Physical Education 3 s.h.
21.440 Measurement and Evaluation/Knowledge and Performance Tests (or equivalent) 2 s.h.
21.447 Knowledge and Performance Tests in PE (or equivalent) 2 s.h.
21.410 Physiological Implications for Teaching Physical Education 3 s.h.
21.414* Elementary Exercise Physiology: Exercise Physiology 3 s.h.
Students must complete all courses in option A or B:

Option A: Physical Education and Artistic Emphasis

- 28/27 Teaching of Dance
- 28/57 Curriculum and Apparatus
- 28/83 Physico-Social Dimensions of Sport
- 28/41 Independent Study
- 28/121 History and Philosophy of Physical Education
- 28/119 Advanced level skill techniques

Option B: Dance Emphasis

- 28/114 Dance History: Primitive Nineteenth Century
- 28/115 Twentieth Century Dance
- 28/73 Composition I
- 28/74 Composition II
- 28/25 Rhythmical Analysis of Dance
- 28/26 Dance Production

Professional Education Requirements

- 7W/92 Introduction to Microcomputing for Teachers
- 7E/72 Methods and Materials in Elementary Physical Education
- 7P/73 Educational Psychology and Measurement
- 7S/91 Introduction to Teaching
- 7S/100 Issues in Education
- 7S/146 Methods of Secondary Physical Education
- 7S/150 Human Relations for the Classroom Teacher
- 7S/187 Seminar: Curriculum Student Teaching
- 7S/191 Observation and Lab Practice in Secondary School
- 7E/192 Lab Practice in Elementary School
- 7S/198 Coaching Practicum (optional)

Physical Education and Sport (Montechning)

Physical Education Core Requirements

- 28/19 Orientation to Physical Education or Dance
- 28/80 Anatomy
- 28/81 Kinesiology
- 28/106 Physiological Implications for Teaching Physical Education
- 28/82 Measurement
- 28/119 Matriculate: Secondary Physical Education
- 28/121 Administration of Physical Education (Theorist and Athlete)
- 28/121 History and Philosophy of Physical Education
- 28/83 Psycho-Social Dimensions of Sport

Sport and Dance Activity Requirements

- 28/83 Fitness and Weight Training
- 28/37 Advanced First Aid and CPR
- 28/105 Care of Athletic Injuries
- 28/115 Methods of Secondary Physical Education
- 28/41 Food, Nutrition, and You
- 28/142 Contemporary Issues of Health Education
- 28/71 Growth and Motor Development
- 10/33 Physical Education Skills (Aerobic Dance)
- 22/1 Survey of Computing

Sport Specialist/Sports Administration

- 28/115 Methods of Secondary Physical Education
- 28/88 Fitness and Weight Training I
- 28/107 Physical Education for the Handicapped
- 28/31 Advanced First Aid and CPR
- 28/105 Care of Athletic Injuries
- 28/14 Theory of Coaching

Program Leading To Certification For Coaching Theory of Coaching

- 28/17 Theory of Coaching
- 28/18 Advanced Coaching

Program Leading To Certification For Coaching Growth and Motor Development

- 28/71 Growth and Motor Development
- 28/170 Growth and Development of the Young Child
- 7P/106 Child Development
- Anatomy
- 28/80 Anatomy
- 27/50 Human Anatomy
- Exercise Physiology
- 28/106 Physiological Implications for Teaching Physical Education
- 27/141 Elementary Exercise Physiology

Advanced First Aid/CPR

- 28/37, 28/38 First Aid and CPR
- 27/58 First Aid
- 28/105 Care of Athletic Injuries
- 28/115 Methods of Secondary Physical Education
- 28/142 Contemporary Issues of Health Education
- 28/71 Growth and Motor Development
- 10/33 Physical Education Skills (Aerobic Dance)
- 22/1 Survey of Computing

Coaching Practicum

- 7E/198 Coaching Practicum
- 7S/198 Coaching Practicum

Supervised experience in coaching interscholastic teams under direction of certified secondary school coaches. Open only to students completing coaching certification programs. Prerequisite: consent of instructor.
Health Education Endorsement Program

The following sequence of courses meets the requirements for Iowa approval of CPER 102 for both the Elementary Education 30 and the secondary Education 50. Students must complete a maximum of 30 semester hours to fulfill this approval area.

Required Courses

28.37 Advanced First Aid/CPR 2 s.h.
or
27.56 First Aid 0 s.h.

or

Red Cross Certifications in First Aid and CPR

17.41 Food, Nutrition, and You 3 s.h.

7E.71 Growth and Motor Development or

17.10 Growth and Development of the Young Child 3 s.h.
or

7P.105 Child Development 3 s.h.

7C.112 Human Sexuality 3 s.h.

7I.120 Drugs: Their Nature, Action, and Use or

46.56 Non-Prescription Drugs 2 s.h.

72.130 Human Physiology or

28.105 Physiological Implications for Teaching Physical Education 4 s.h.

28.142 Contemporary Issues of Health and Physical Education 3 s.h.

7S.155 Methods and Administration of School Health Programs or

Phrasing: 28.142

Honors

The Honors Program is designed to serve the interests of superior students. It gives the participant some research experience and a perspective on certain aspects of graduate work. The honors student in physical education takes 28.934 Honors Readings, completes a reading or research project under supervision of a physical education faculty member, and prepares a paper summarizing project results. To be eligible for honors study in physical education, the student must have at least a 3.2 grade-point average at the beginning of the junior or senior year, when the honors courses are taken. To qualify for the honors degree, the student must maintain at least a 3.2 average through the remainder of his or her degree work.

Graduate Programs

This department was one of the pioneers in providing graduate physical education programs for women, especially at the doctoral level. It has awarded over 400 master’s degrees and over 150 doctoral degrees during the past half century. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. This department’s proud heritage of producing leaders has been furthered by recent graduates, and we continue to encourage high aspirations of the young women and men we serve.

The curricular assume previous education in the respective fields. A program is planned with the individual with consideration given to his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, research in coaching, administration, or supervision in the schools or in a university.

The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of areas of research available to the student. Attendance at summer sessions is helpful in obtaining full opportunities for diversity of instruction.

The graduate student works primarily in the Department of Physical Education and Dance, but the resources of the University are available as needed. Work outside the department provides a broader view and enrichment for the selected specialization of the master’s and doctoral candidate.

The most common areas of specialization have been adaptive physical education, administration of athletics and physical education, methods and supervision, coaching, measurement and evaluation, sociology of sport, psychology of sport, and sports communications. Internships are available in many areas and are strongly encouraged for specialists in these areas. Administration, supervision, coaching, and communication courses are available to students who desire to specialize in these areas.

Doctor of Philosophy

All doctoral students must complete a minimum of 72 semester hours of graduate work. The degree requirements for the master’s degree and credit for the dissertation.

Preparation

Competency in the areas noted under the M.A. program is also required for doctoral programs. Any deficiencies in these areas must be remedied at the earliest possible time.

Tools of Research

All doctoral students are required to take a statistics course at an appropriate level at The University of Iowa. As their second requirement, students may choose either a foreign language or a computer science course.

The language requirement may be satisfied by taking two semesters of a given language with a minimum grade of C, by passing a Graduate Record Examination (GRE) Advanced Test in a given language, or by passing a Ph.D. language examination.

The computer skill requirement option may be satisfied by taking three semester hours as approved by the departmental graduate committee.

Required Courses

28.142 Contemporary Issues of Health and Physical Education 0 s.h.

28.301 Seminar in Research 2 s.h.
28,302 Seminar: Perspectives in Human Movement 2 s.h.
28,401 Thesis arr.

Specialization
The student must complete a specialization of 36 semester hours, including dissertation. A student must also take approximately 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 desiring an area not listed 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 student and advisor must set the date of the examination which is conducted according to the policies established by the departmental graduate committee. The program of study and dissertation topic must be filed and the oral requirements met prior to taking the comprehensive examination.

Dissertation
All doctoral students are required to complete a dissertation. A final examination is held with an appropriate committee.

Residency Requirement
Two semesters of at least nine semester hours in residence are required.

Dance
Bachelor of Arts

Required
28D-25 Dance Production 3 s.h.
28D-29 Rhythmic Analysis of Dance 2 s.h.
28D-73 Composition I 2 s.h.
28D-74 Composition II 2 s.h.
28D-80 Anatomy 3 s.h.
28D-81 Kinesiology 3 s.h.
28D-114 Dance History: Primitive Nineteenth Century 3 s.h.
28D-115 Twentieth-Century Dance 3 s.h.
28D-173 Composition III 2 s.h.
28D-174 Composition IV 2 s.h.
28D-177 Beginning Labanotation 3 s.h.
25D-165 Opera Dance Theatre Production 6 s.h.

Electives
Twelve semester hours from the following:
28D-91 Independent Study arr.
28D-111 Methods and Materials of Teaching Children’s Dance (Israins ZZ123) 2-3 s.h.
28D-113 Ballet Pointe 1-2 s.h.
28D-117 Ballet Pedagogy 2 s.h.
28D-122 Workshop: Artists-in-Residence 1-4 s.h.
28D-130 Improvisation 3 s.h.
28D-138 Teaching of Modern Dance 2 s.h.
28D-170 Readings in Dance arr.
28D-175 Dance Theory 3 s.h.
28D-176 Criticism of Dance 3 s.h.
28D-178 Intermediate Labanotation 3 s.h.
28D-181 Dance Performance 0-1 s.h.
28D-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. Preferably this requirement will be fulfilled in the first two years as a declared major. 18 semester hours must be earned in dance technique classes from the following:
28D-5 Tap 1-2 s.h.
28D-5 Modern Dance 1-2 s.h.
28D-5 Major Modern Dance I 2 s.h.
28D-9 Jazz 1-2 s.h.
28D-10 Ballet 1-2 s.h.
28D-11 Major Ballet I 1-2 s.h.
28D-14 intensive training for the Male Dancer 1-2 s.h.
28D-107 Major Modern Dance II 1-3 s.h.
28D-108 Major Modern Dance III 1-3 s.h.
28D-109 Major Ballet II 1-3 s.h.
28D-110 Major Ballet III 1-3 s.h.

Within the required 18 semester hours of dance technique, a minimum of two consecutive semesters must be taken from 28D-107, 28D-108, 28D-109, or 28D-110. Also required will be a minimum of one semester of tap and jazz technique.

Dance Education
See the U.S. in physical education (dance specialization) program.

Master of Arts (Dance Specialization)
The M.A. degree in physical education (dance specialization) is awarded on completion of at least 36 semester hours of graduate work including thesis. The curriculum may lead to teaching of dance or to further work toward a dance career.

Prerequisites
Auction
28D-73-74 Composition I-III 4 s.h.
28D-80 Anatomy 3 s.h.
28D-81 Kinesiology 3 s.h.
28D-29 Rhythmic Analysis of Dance 2 s.h.
28D-26 Dance Production 3 s.h.
28D-114 Dance History: Primitive Nineteenth Century 3 s.h.

Required Courses
28D-113 Ballet Pointe 3 s.h.
28D-138 Teaching of Modern Dance 3 s.h.
28D-173 Composition III 2 s.h.
28D-174 Composition IV 2 s.h.
28D-177 Beginning Labanotation 3 s.h.
28D-115 Twentieth-Century Dance 2 s.h.
28D-175 Dance Theory 0-4 s.h.
28D-176 Criticism of Dance 3 s.h.
28D-204 Seminar Dance 2 s.h.
28,302 Seminar: Perspectives in Human Movement 2 s.h.
28D-401 Thesis 3-4 s.h.
28D-107 Major Modern Dance II 2 s.h.
28D-108 Major Modern Dance III 2 s.h.
28D-110 Major Ballet I 2 s.h.
28D-110 Major Ballet II 2 s.h.

Total 28-29 s.h.

Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Facility
The faculty represents diversified backgrounds and specializations and their abilities and interest are complementary. Most faculty members hold advanced degrees. Several bring educational backgrounds from abroad and all are experienced teachers. Graduate faculty members are experienced in research and writing and are available for the guidance of graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called upon for lectures, speeches, and research presentations.

Facilities
Gymnasiums, dance studios, special exercise rooms, and pools are used in the various programs. In Harry Gymnasium, North Hall, the Field House, the Recreation Building, and the Recreation Center at the Memorial Union. A field for outdoor sports is near Harry Gymnasium. The proximity of the river makes canoeing instruction feasible on a regular class schedule. The archery range is located along the river in a rustic setting; outdoor fields and a track are available between the Field House and the Recreation Building. The University golf course is used for some classes.

Courses
Physical Education

Primarily for Undergraduates
31D Biological Physical Education 1 s.h.

Physical education majors only. May be repeated.
31D Biological Physical Education 1 s.h.

Back-up on those who have completed requirements in physical education units. May be repeated.
31D Theory of Teaching 2 s.h.

Value and nature of athletic, structuring the program.
relettership of players, organization of personnel, and scheduling of meets.

29.16 Issues in Cross-Country and Skiing Education
Instructor's Course 1.5 h.

29.17 Leeds on Cross-Country: Water Safety
Instructor's Certificate 2.5 h.

29.18 Orientation to Physical Education or Dance
2.5 h.

29.19 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.20 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.21 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.22 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.23 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.24 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.25 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.26 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.27 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.28 Orienteering, Cross-Country, and Skiing Education
2.5 h.

29.29 Orienteering, Cross-Country, and Skiing Education
2.5 h.

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Total departmental enrollments are typically 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 members of the faculty. Senior members of the faculty teach the elementary courses and supervise the associated laboratories.

Beyond the elementary level, typical course enrollments are 20, and there is ample opportunity for individual work. Special introductory courses are offered for majors in physics and astronomy and for others with special interest in these subjects. There are about 80 undergraduate majors—10 of whom are honors students—and 60 graduate students in physics or astronomy.

About 40 percent of the 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 base for a career in another field.

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 Major in Physics

The Bachelor of Science program provides preparation for graduate study in physics and related sciences or for employment in research laboratories. The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in the physical sciences than the B.S. program, and thus provides for a wider choice of electives.

Bachelor of Science

The following courses or their equivalents are required for the Bachelor of Science degree in physics:

- 22M:25-26 Calculus III
- 22M:27 Introduction to Linear Algebra
- 22M:28 Calculus III or
- 22M:35-37 Engineering Calculus
- 22M:38 Differential Equations for Engineers

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

- 22M:25-26 Calculus III
- 22M:27 Introduction to Linear Algebra
- 22M:28 Calculus III or
- 22M:35-37 Engineering Calculus
- 22M:38 Differential Equations for Engineers

Undergraduate Minor in Physics

A program of physics courses satisfying the 16 semester hours required by the college must include 12 semester hours of 100-level physics courses.

Undergraduate Major in Astronomy

The major in physics and astronomy is designed to provide the student with a solid foundation in physics, mathematics, and related sciences, and to prepare him or her for graduate study or careers in astronomy, astrophysics, and related fields.

The major consists of 12 semester hours of physics and astronomy courses, and 12 semester hours of mathematics courses, bringing the total to 24 semester hours.

Additional requirements include:

- Completion of Calculus I and II
- Completion of Linear Algebra
- Completion of Modern Physics
- Completion of Introduction to Astronomy

The major is designed to prepare students for graduate study in physics, astronomy, or related fields, as well as for careers in scientific research, teaching, or other fields requiring a strong background in physics and astronomy.
purpose of this program is to prepare the student for a career in advanced study in astrophysics, radio astronomy, or space astronomy.

The Bachelor of Arts degree program is designed for students who wish to gain a 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 sciences-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.

Bachelor of Science

The following courses or their equivalents are required for the Bachelor of Science degree with a major in astronomy:

22M-25-26 Calculus I-III 8 s.h.
22M-27 Introduction to Linear Algebra 4 s.h.
22M-28 Calculus III 4 s.h.
22M-35-37 Calculus I-III 12 s.h.
22M-38 Differential Equations for Engineers 4 s.h.
29-19-19 Introductory Physics I-III 12 s.h.
29-81-82 General Astronomy 8 s.h.
29-115 Intermediate Mechanics 3 s.h.
29-116 Introductory Quantum Mechanics 3 s.h.
29-119-120 Introduction to Astrophysics I-II 6 s.h.
29-126-127 Electricity and Magnetism 6 s.h.
29-132 Intermediate Laboratory 2 s.h.
29-137 Astronomical Laboratory 2 s.h.
29-191 Atomic Physics 3 s.h.
29-194 Plasma Physics 3 s.h.
29-196 Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements listed above to the greatest feasible extent, by taking one or more of the following courses:
29-117 Optics 3 s.h.
29-118 Statistical Physics 3 s.h.
29-121 Introduction to Astrophysics III 3 s.h.
29-137 Astronomical Laboratory (additional semester) 2 s.h.
29-177-172 Mathematical Methods of Physics 6 s.h.
29-195 Plasma Physics 3 s.h.

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

22M-25-26 Calculus I-III 8 s.h.
22M-27 Introduction to Linear Algebra 4 s.h.
22M-35-37 Engineering Calculus I-III 12 s.h.
26-17-19 Introductory Physics I-III 12 s.h.
29-112 College Physics 8 s.h.
29-65 Introductory Physics I-III 4 s.h.
29-61-62 General Astronomy 8 s.h.
29-115 Intermediate Mechanics 3 s.h.
29-117 Optics 3 s.h.
29-118 Statistical Physics 3 s.h.
29-118-120 Introduction to Astrophysics I-II 6 s.h.
29-126 Electronics 4 s.h.
29-129 Electricity and Magnetism 3 s.h.
29-132 Intermediate Laboratory 2 s.h.
29-137 Astronomical Laboratory 2 s.h.

Undergraduate Minor in Astronomy

The 16 semester hours of course work required by the college - must include six semester hours selected from the following list of courses:
29-119-121 Introduction to Astrophysics I-II 6 s.h.
29-137 Astronomical Laboratory and an additional six semester hours of these courses or of 100-level physics courses.

Double Major in Physics and Astronomy

It is possible to obtain a double major in physics and astronomy. Students who are interested in such a combination should consult with their advisor. For general requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.

Honors

Selected junior and senior majors may take six to eight semester hours of 29-99 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their programs for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

Graduate Program

Two advanced degrees are offered in physics, the Master of Science (with thesis or with a critical essay) and the Doctor of Philosophy, and in astronomy, the Master of Science (with thesis or with a critical essay). A student who wishes to pursue a program in astronomy beyond the M.S. level may qualify for a Doctor of Philosophy degree in physics with specialization and a dissertation in astronomy or astrophysics.

An 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 astronomystandard level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay advisor then becomes the candidate's general advisor and the chair of the final examination committee. Each candidate for an advanced degree is expected to serve as a graduate teaching assistant for at least one year.

Master of Science in Physics

The M.S. degree in physics is offered with thesis or with a critical essay. Either degree may be a terminal degree or an intermediate step toward a Ph.D. degree. The final examination in either case is an oral one, 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 the successful completion of graduate work and a thesis based on original experimental or theoretical investigation by the candidate. No more than half of the minimal 30 semester hours may be for the critical essay (29-220 Individual Critical Study).

Up to 30 semester hours of the graduate program may be in related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, engineering, etc.

The candidate for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as an undergraduate or a graduate:

29-112-121 Intermediate Mechanics 3 s.h.
29-116 Introductory Quantum Mechanics 3 s.h.
29-117 Optics 3 s.h.

22M-27 Introduction to Linear Algebra 4 s.h.
22M-35-37 Engineering Calculus I-III 12 s.h.
26-17-19 Introductory Physics I-III 12 s.h.
29-112 College Physics 8 s.h.
29-65 Introductory Physics I-III 4 s.h.
29-61-62 General Astronomy 8 s.h.
29-115 Intermediate Mechanics 3 s.h.
29-117 Optics 3 s.h.
29-118 Statistical Physics 3 s.h.
29-118-120 Introduction to Astrophysics I-II 6 s.h.
29-126 Electronics 4 s.h.
29-129 Electricity and Magnetism 3 s.h.
29-132 Intermediate Laboratory 2 s.h.
29-137 Astronomical Laboratory 2 s.h.
29-118 Statistical Physics 3 s.h.
29-129-130 Electricity and Magnetism 6 s.h.
29-133 Advanced Laboratory Methods 4 s.h.
29-171-172 Mathematical Methods I, II 6 s.h.
29-191 Atomic Physics 3 s.h.
And two additional courses selected from:
29-192 Elementary Particles and Nuclear Physics 3 s.h.
29-193 Introductory Solid State Physics 3 s.h.
29-194 Plasma Physics 3 s.h.

The student's plan of study should provide for as much advanced work as possible, and previous permission is required.

**Master of Science in Astronomy**

The M.S. degree in astronomy is offered with either a thesis or with a critical essay. The general requirements are the same as for the M.S. in physics (see above). Course requirements or their equivalents are required for an undergraduate or a graduate student.

- 29-115 Intermediate Mechanics 3 s.h.
- 29-116 Introductory Quantum Mechanics 3 s.h.
- 29-117 Cosmology 3 s.h.
- 29-118 Statistical Physics 3 s.h.
- 29-119-121 Introduction to Astrophysics I, II, III 9 s.h.
- 29-120-125 Electricity and Magnetism 5 s.h.
- 29-123 Advanced Laboratory 2 s.h.
- 29-137 Astronomical Laboratory 2 s.h.
- 29-140-141 Mathematical Methods of Physics 6 s.h.
- 29-161 Atomic Physics 3 s.h.
- 29-194 Plasma Physics 3 s.h.

A student who intends to continue for the Ph.D. in physics with an astrophysics specialization should take the following courses as early in his or her master's program as possible:

- 29-155 Plasma Physics 3 s.h.
- 29-232-233 Theoretical Astrophysics I, II 6 s.h.
- 29-234 Stellar Structure and Evolution 3 s.h.
- 29-239 Special Topics in Astrophysics 2 s.h.
- 29-263 Seminar: Astrophysics arr.

**Doctor of Philosophy in Physics**

The program of study for the Ph.D. degree in physics includes:

- Thorough course work in both classical and modern theoretical physics for all candidates, whether their specialization is in theoretical physics or experimental physics.
- Comprehensive examinations.
- Participation in advanced seminars.
- Original research in experimental physics, theoretical physics, or astrophysics.
- Preparation and defense of a written dissertation based on this work.

Candidates for the Ph.D. must take at least 27 semester hours of 200-level courses in the department, excluding 29-220, 29-381, 29-282, and seminars. The following minimum program is recommended for preparation for the comprehensive examinations:

- 29-192 Atomic Physics 3 s.h.
- 29-192 Elementary Particles and Nuclear Physics 3 s.h.
- 29-163 Introductory Solid State Physics 3 s.h.
- 29-194 Plasma Physics 3 s.h.
- 29-208 Classical Mechanics 3 s.h.
- 29-212 Statistical Mechanics I 3 s.h.
- 29-213-214 Classical Electrodynamics 6 s.h.
- 29-245-246 Quantum Mechanics I, II 6 s.h.

Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used heavily in these courses. An introduction to these fields is given in 29-171-172 Mathematical Methods of Physics. The selection of less advanced courses will depend on the adequacy of the student's preparation for graduate work. The student's choice of more advanced and specialized courses will depend on the discretion in which the Ph.D. requirements, no more than 20 of the minimal 72 semester hours may be in research and seminars.

A candidate for the Ph.D. degree will not be recommended for the degree until he or she has written the dissertation in proper form for formal publication and has submitted it, with the approval of the research advisor, to a widely distributed, refereed, official journal for publication.

**Financial Assistance**

Fellows qualified for graduate study are encouraged to apply for fellowships and stipendships. Inquiries should be directed to the head of the department.

**Research and Facilities**

The department has an excellent library and a number of well-equipped laboratories and observatories. The associated facilities of the University's Weeg Computing Center are available for research by students in the Ph.D. program. The general machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machinery shops for use by advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio), low energy nuclear physics, plasma physics, solid state physics, magnetospheric physics, soliton-terrestrial, interplanetary, and planetary instrumentation. There are also programs in molecular physics, low temperature physics, laser physics, and accelerators and musical instruments.

A major experimental space physics program is conducted in the department. Extensive facilities are available for construction of equipment for satellites and spacecraft. In the reception of solar telemetry, and for computerized decoding and analysis of data.

An unusually versatile 6-c.M.t Van de Graaff accelerator, which has been modified for energies up to 1 M.V., is used in studies of nuclear reactions, induced by hydrogen, helium, lithium, and argon nuclei. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are studies of surfaces and semiconductors. Several experimental double plasma devices are used to study confinement, nonlinear waves, and turbulence effects in low-temperature, steady-state plasmas. A variety of laser spectroscopy and molecular beam studies is carried out at the Iowa Laser Facility.

The department is well equipped for research in observational astronomy. The primary optical interferometer, a 24-inch reflecting with a computer-controlled photocathode, is used for interferometric and other laboratory studies. Research programs in galactic and extragalactic radioastronomy are carried out using an 18-foot parabolic reflector located at the North Liberty Radio Observatory near Iowa City, one of the radio-telescopes in the U.S. Very Long Baseline Interferometer Network. Current long-term projects are the theoretical studies of extragalactic radio sources and OH masers. Students and faculty also conduct research programs at the Very Large Array, at the National Radio Astronomy Observatory, the Kitt Peak National Radio Observatory, and the Arecibo Observatory.

Theoretical research is devoted to elementary particle physics, high-energy physics, plasma physics, astrophysics, atmospheric, space, and planetary physics, solid state physics, nuclear physics, and atomic and molecular physics.

**Courses**

Prerequisites and corequisites are specified as guides and may be waived by the instructor. An elementary course may not be repeated for credit or grade points if the student has already completed a course with essentially the same material. Courses 29-5, 29-8, 29-11-12, 29-17-18, 29-50, and 29-61-62 are accepted toward the College of Liberal Arts general education requirements in the natural sciences.
Teaching Major
Undergraduates planning to teach in the social sciences with an emphasis on political science must meet these requirements:

- Same political science course requirements as for the B.A. and B.S., except that the minimum requirement in political science courses numbered above 100 is 11 semester hours.
- 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 on 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 department has a program leading to a B.A. degree with honors. It is open to a limited number of students with a minimum general grade-point average of 3.2. To graduate with honors, the student 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 30,180 Honors Introduction to Political Inquiry, and must complete at least two semesters of work in the 30,182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute one semester of 30,84 Honors Senior Research Project for one of the seminars of the advanced honors seminar. Students must complete a thesis before making substitutions. Students interested in seeking a B.A. degree with honors should contact the departmental honors advisor prior to the beginning of the junior year.

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; and the Master of Arts in public affairs program, designed for students who wish to prepare for careers in government service, public affairs, or civil education training in secondary schools or junior and community colleges. The general M.A. degree is normally 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 indicated in the table below, elective opportunities make possible several areas of specialization. Students are encouraged to take their electives in a single subfield (but not necessarily in a single department). Among those available are international relations, personnel management and labor relations, public policy analysis, and quantitative methods in management. Planning the elective program should be undertaken in consultation with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. The student must complete at least 36 hours of course work with at least 3.0 grade-point average, and must pass an oral final examination. Although the office suggested below implies completion within a year, the program is sufficiently flexible to accommodate students who may require additional time to meet all degree requirements.

Fall Semester
- 30,228 Public Policy Analysis I 3 s.h.
- 30,229 Introduction to Administrative Computing 1 s.h.
- 30,229 Introduction to Social Research Methods 3 s.h.
- 66,119 Economics of the Government Sector 3 s.h.
- Electives 5 s.h.

Spring Semester
- 30,229 Administrative Theory and Public Policy 3 s.h.
- 30,221 Urban Administration 3 s.h.
- 30,223 Public Policy Analysis II 3 s.h.
- Electives 4 s.h.

Summer Session
- 30,391 Internship in Public Policy and Administration 3 s.h.
- or 30,392 Practicum in Public Policy and Administration 3 s.h.
- Elective 3 s.h.
- Total 36 s.h.

Master of Arts with Thesis
(except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the "College of Law" section of the Catalog), the department normally offers the M.A. only as a preliminary step toward the Ph.D.)

The student usually obtains 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 eight 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 a student's first-year evaluation committee finds that he or her course work and research projects provide sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that he or she be allowed to proceed with a doctoral program without writing a 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, and recommends 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 will require a thorough grounding in applied multivariate statistics, which is demonstrated by taking 30,301 Advanced Research Methods and receiving a grade no lower than B. Any special topics courses needed by conducting dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired on a case-by-case basis. All doctoral students must successfully complete oral comprehensive examinations. Students in doubt about the requirements of the Ph.D. should discuss it with their faculty advisor in the first year of study.

Comprehensive Examination
Students must take the comprehensive examination after completing the sixth semester of residence, or in the last examination period following their attainment of 45 hours of graduate credit, whichever comes later.

Candidates for the Ph.D. take written examinations in three of these areas: American Politics and Public Policy, Comparative Politics, International Relations, and Political Theory.

Before taking the written examinations, candidates must present a written dissertation proposal. They must evaluate and defend the proposal in an IAB examination, which may be divided into any matter relevant to the written examination.

Each Ph.D. candidate in political science must acquire at least four semesters of special supervision in teaching and/or research. This instruction is
graduate students with little or no previous knowledge of Latin American politics.

30.04 Problems of Comparative Politics 4 sh.
Selected problems in comparative analyses of politics. May be repeated with consent of instructor.

30.06 Political Economy and Public Policy Development
Relationships between political, economic, and social change in the developing world. Development of political and economic objectives and strategies of balance of power, emphasis on significance of social mobility for receiving/losing power by alternative development strategies.

31.01 Political Ethics and Leadership
Backgrounds, careers, attitudes, and behavior of political leaders; geopolitical focus may vary with instructor. May be repeated with consent of instructor.

31.03 Legislative Behavior
Systematic analysis of legislative institutions, procedures, and behavior, which may focus on the United States, Europe, or developing countries. May be repeated with consent of instructor.

31.05 Legislative Process
Analysis of internal processes in democratic systems, roles of political parties, public opinion, and the legal process; selection, leadership, and institutionalization of legislative bodies; support for political takeovers; repeal of laws; and government purposes. May be repeated with consent of instructor.

31.07 Public Opinion and Electoral Behavior
Analysis of public opinions and beliefs in mass political voting behavior, functioning of electoral systems.

31.09 Human Rights and World Community
Nature of human rights and international obligations relating to them, problems of implementation. Same as sociology 31.09.

33.00 Problems in International Politics 4 sh.
Intensive examination of selected issues of international politics, emphasizing problems of conflict resolution and crisis analysis. May be repeated with consent of instructor.

33.06 Teaching and Research Seminar 4 sh.
In-depth study of a specific topic. May be repeated with consent of instructor. Prerequisite: consent of supervising faculty member.

33.08 Practicum in Public Policy and Administration
Practicum consent of supervising faculty member.

33.09 Practicum in Public Policy and Administration
Practicum consent of supervising faculty member.

33.10 Master's Thesis
Practicum to supervise graduate faculty member.

33.12 PhD. Dissertation
Practicum for supervising faculty member.

Portuguese
See “Spanish and Portuguese.”

Psychology
Department chair: DeW. Nader

The B.A. and B.S. degree programs in psychology both are designed to contribute to a student's general liberal education and to provide a foundation for preprofessional training in psychology and closely-related disciplines but also in other areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-equipped to complement their psychology major with substantial preparation in another program more closely tied to the world of work, e.g., education, social work, journalism, nursing. It should be understood that almost all vocationally opportunities in psychology require advanced degrees.

The B.S. program is specifically intended for students planning to pursue advanced work in psychology in a related field. It includes requirements for distinct courses in statistics and in experimental psychology, as well as some special requirements in mathematics and natural science. The B.A. program has somewhat fewer specific requirements and rather less formal emphasis on methodology. Both programs allow ample time for the student to combine work in psychology with work in 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. Such a student who intends to pursue graduate work in psychology or in a related area may enrich the B.A. program with courses in statistics and experimental psychology.

Students in either program begin with a general introductory course, followed by one or more courses in methodology and electives in several broad areas of psychology: animal learning and behavior, developmental psychology, child and developmental, clinical, human experimental, and social. The department maintains excellent facilities to support teaching and research about human and animal behavior. All faculty members are actively engaged in research and they bring to their undergraduate teaching the excitement that such activity engenders. Many opportunities exist for interested and capable students to participate in research projects being carried on in the department.

Bachelor of Arts
The student must satisfy the general College of Liberal Arts requirements for the B.A. degree and must complete at least 25 semester hours in psychology. At least 10.5 semester hours of the major must be completed in this department. Satisfactory completion of the psychology 31.01 introduction to psychology automatically satisfies three semester hours of the general education requirement in social science. The B.A. program must include the following courses, or equivalents: 31.1 Elementary Psychology or 31.3 General Psychology; 31.14 Statistics. Psychological Research, one elective course from four of the five area groupings given below, with at least two of these four area groupings being 100-level courses. The 31.43 requirement may be satisfied by a combination of 31.14 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
The student must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 28 semester hours of course 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 or 31.3 General Psychology; 31.14 Statistics. Psychological Research, one elective course from each of the five area groupings below, with at least four of these five area groupings being 100-level courses. Candidates for the B.S. degree in psychology are expected to satisfy the general education requirement in natural sciences in one of the following ways: one semester of chemistry and one semester of biology; two semesters of courses in chemistry or physics and one semester each of chemistry and physics. B.S. majors must complete at least one semester of calculus. The student should consult with his or her adviser concerning specific courses which will satisfy these requirements.

Minor
A minor in psychology is an option which should be attractive to students from a variety of disciplines. At least 15 of the 15 semester hours for a minor in psychology must be in 100-level courses in this department. Departmental advisors can assist students in identifying sequences of courses for a minor appropriately complement the student's major.

Area Electives
Area offerings vary somewhat from semester to semester. Prior to each registration period, students should
Animal Learning and Biopsychology
3:117 Introduction to Comparative Psychology 3 s.h.
3:123 Psychology of Learning 3 s.h.
3:126 Physiological Psychology and Psychobiology 3 s.h.
3:128 Introduction to Behavioral Pharmacology 3 s.h.
3:129 Biological Aspects of Behavior 3 s.h.
3:135 Principles of Behavioral Analysis 3 s.h.

Child and Developmental Psychology
3:14 Introduction to Child Psychology 3 s.h.
3:112 Development of Social Judgment 3 s.h.
3:114 Cognitive Development of Children 3 s.h.
3:115 Psychology of Sex Differences 3 s.h.
3:148 Individual Differences in Developmental Psychology 3 s.h.

Clinical Psychology
3:113 Introduction to Clinical Psychology 3 s.h.
3:105 Personality 3 s.h.
3:161 Schizophrenia 3 s.h.
3:162 Depression and Mania 3 s.h.
3:163 Abnormal Psychology 3 s.h.
3:166 Behavior Disorders in Children 3 s.h.
3:170 Behavior Modification 3 s.h.

Human Experimental Psychology
3:144 Perception and Motor Processes 3 s.h.
3:102 Psychology of Art and Science 3 s.h.
3:112 Learning and Motivation in Chiappori 3 s.h.
3:114 Language Processing 3 s.h.
3:127 Memory and Cognition 3 s.h.
3:132 Motivation 3 s.h.
3:133 Perception 3 s.h.

Social Psychology
3:135 Introduction to Social Psychology 3 s.h.
3:141 Development of Children's Social Behavior 3 s.h.
3:151 Social Change 3 s.h.
3:107 Environmental Stress 3 s.h.
3:108 Small Group Processes 3 s.h.

Honoors
The department has an active honors program open to majors with at least a 3.3 grade-point average in psychology courses and at least 3.2 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department Honors Seminar in Psychology during the spring semester of the junior year. Interested majors should contact the department honors advisor early in the junior year.

Graduate Program
The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training will require at least two additional years in the department, depending on the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarship. Students are asked 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 careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society. Prospective applicants should understand that the number of positions appropriate for graduates of this program is limited and that the competition for available openings is fairly intense.

candidate is expected to identify one of these areas of considerable breadth and to follow a program which develops through understanding of the relevant human and social phenomena which are central to that subdiscipline. While pursuing specialty training, all students also meet core course requirements in statistics and research methods, in training, and in areas outside the primary one.

The training area programs are sufficiently flexible to the individual with a student who wishes to do so to develop substantial components in the second training area. Several such joint programs have been formulated and others can be developed as student interest dictates. Joint programs involve a mix of course work in the 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, behavioral medicine, aging, organizational and consumer behavior, communications, and neuropsychological science. Preparation in one of these interest areas will involve some special breadth seminars. When 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 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfactorily, through one of several options, requirements in statistics and research methods, and in learning, a course in the history and/or the philosophy of psychology is strongly recommended. Each student also is expected to take sufficient course work outside the primary training area to develop a rational basis for background in the discipline of psychology as a whole. The nature of these requirements, and their placement within the graduate program, varies somewhat among the training areas, and is determined on the student's background and interests.

During each of the first three semesters, each graduate student ordinarily takes three courses, some of which are general core courses, some of which are courses in the training areas, and some of which are outside area electives. The student also becomes familiar with the literature, strategies, and special techniques in one or more research areas through engagement in individually-supervised research projects. This participation, which may be with one faculty member or with a different faculty member each semester, is designed to help the student develop by the end of the third semester a reasonably detailed plan for the masters research project.

Before the beginning of the fifth semester in the program, the student is expected to complete the masters project and defend the thesis. A comprehensive examination covering material in the primary training area and in the secondary area, if any, is given early in the fifth semester. This examination is based on a faculty-wide review of the student's overall record of performance on the M.A. program, the comprehensive examination, in course work required for the masters degree, and research service activities.

During the third year, while continuing selected course work in the training area, the student develops a prospectus for the dissertation research. The fourth year is devoted primarily to advanced seminars and to the completion of the Ph.D. study and the preparation of the dissertation. In the Ph.D. final examination, the student offers an oral defense of the dissertation and exhibits an ability to relate the dissertation work to broader issues in the training area and interest areas in which the student has chosen to specialize.

Master of Arts with Thesis
As indicated above, the department does not offer a Master of Arts degree. The Master of Arts degree with thesis is an acceptable step for students on the Ph.D. objectives. This degree requires:
satisfactory completion of at least 30 semester hours of graduate course work in psychology, with at least 18 semester hours in the area of specialization. The student also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts without Thesis
The Master of Arts degree without thesis is an option available to those few students who terminate their work in this department after two semesters. Awarding of this degree requires satisfactory completion of at least 30 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. The student also must pass a written examination covering the area of specialization.

Graduate Training Areas

Animal Learning and Biopsychology
The focus of the program in animal learning and biopsychology is on the analysis of behavior, primarily in nonhuman subjects, through the use of basic behavioral and psychological principles. Special faculty strengths are in the areas of nonhuman animal learning, operant conditioning, comparative psychology, motivation, neuropharmacology, neuroendocrinology, and cognitive psychology. Finally, the program will seek the opportunity to train students in computer-aided experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurosurgery, histology, and biochemical assay.

Faculty members in the animal learning and biopsychology area interact extensively with colleagues from a number of basic science departments in the College of Medicine, including Anatomy, Pharmacology, and Physiology. Collaborative activities provide excellent research and training opportunities for students interested in such emerging interdisciplinary fields as behavioral medicine and neurobehavioral science.

Child and Developmental Psychology
Students in the clinic and developmental program are exposed to a broad understanding of children's development in the social, cognitive, and perceptual domains. As the training program proceeds students may focus their preclinical work on any of the subspecialties or may choose to develop a more particular specialization in such areas as language development, learning and memory, the development of social judgment, sensory 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 preclinical sequence but a number of faculty members in the department are involved in research on aspects of aging and hence can provide some supervision for students interested in this area. Faculty members have close contacts with many faculty members from the department of Speech Pathology and Audiology, the College of Education, and the Department of Paediatrics, and these relationships can be utilized to students who wish to gain additional background in developmental aspects of communication or of behavioral medicine.

Clinical Psychology
The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the 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 work with supervised research experience. Students in the clinical program may develop special competence in such areas as psychophysiology, personality, psychotherapy, aggression, the effective disorders, behavioral and cognitive therapies, sexual deviation, and old age psychopathology. Faculty members are collaborating actively with colleagues from departments such as psychiatry, psychology, occupational therapy, speech pathology, and audiology, and from agencies such as the Health Services Research Program, the School of Social Work Gerontology Program, and the area Education Agencies. Finally, as a consequence of such collaboration, the crisis team, behavioral medicine and aging are areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department, joint training programs in clinical psychology and developmental, and in clinical-human experimental, have been established; and similar joint programs combining clinical training with work in other training areas can be arranged.

Advanced students have opportunities for gaining additional practical experience through placements in clinical facilities maintained by the college, state, and universities. 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 ordinarily occurs after completion of all course work and of most, if not all, of the dissertation project.

Human Experimental Psychology
Students affiliated with the human experimental program concentrate their training in the broad areas of cognition, information processing, and learning. Current faculty members specialize in the following areas: learning, memory, and problem solving in children; language, cognition, and neurolinguistics; mathematical psychology; psychophysical scaling; and signal detection theory, cognitive effects of drugs, human judgment, and decision making; inform processing; and psychoacoustics. Faculty members in the human experimental area are prepared to help students gain additional experience in a variety of interest areas, including human factors, communications, aging, organizational behavior, and behavioral medicine. Collaborative research is under way with faculty members from the College of Business Administration, from the Health Sciences Research Center, and from several departments including industrial and management engineering, speech therapy and audiology, neurology, and anesthesia.

Social Psychology
The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of the following areas: social psychophysiology, dealing with reciprocal interactions in cognitive systems; social cognition, dealing with such areas as attraction, identification, and change, cognitive consistency, attribution, and perception; social influence, including such areas as social learning, social development, imitation, conformity, etc.; and the social psychology of groups, dealing with cooperation and conflict, group decision processes, social facilitation, etc.

Students in the social psychology area also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communicative behavior, 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, and participation in departmental research projects, will broaden the student's employment prospects.
Graduate Admission

The graduate program in psychology is geared primarily to students seeking 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 another discipline or profession. An individual interested in such a program should contact the department chair before February 1.

The deadline for applications is February 1. For all materials 30 days on file by that date, the Graduate Record Examination (GRE) Aptitude Test should be taken in October, certainly no later than in December. 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 composite consideration of prior academic performance, letters of reference, scores on the verbal, quantitative, and analytic sections of the GRE Aptitude Test, and the applicant's statement about background and purpose. Initial review of admission materials is done by faculty members in the training area in which the applicant expresses primary interest.

An undergraduate major in psychology, including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences, psychology, or related fields, certainly is desirable though not required. Students may have other than a background but who are strongly qualified on other grounds may be admitted, but will be expected to remedy deficiencies in their previous work or independent study prior to enrolling in the regular graduate program.

A student who completes substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as transcripts and course syllabi, which reflect significant engagement in research and scholarly writing. This material and the record of previous graduate coursework will be reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In no instance will a student be permitted to complete substantial research or writing 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 Assistance

All students admitted to the graduate training program in psychology automatically are considered, on the basis of merit, for such financial support as may be available in the form of fellowships, teaching assistanships, research assistantships, travelships, tuition scholarships, etc. No separate application for financial aid is required.

Faculty

National rankings of graduate psychology programs consistently have shown this department to be among the top 25 in the nation. The widely recognized faculty of the department and its training and scholarship is manifest in the publication of some 75 articles, books, reviews, and book chapters each year, and in the fact that many of the faculty members are editors or authors, associate editors, and regular peer reviewers for major psychology journals.

Faculties

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology, and adjoining space in Seashore Hall, include three separate animal facilities, several surgeries, a histology laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observation booths with remote audiovisual control and recording equipment, soundproofed rooms, closed circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. Seashore Psychophysiology Laboratory, and well-equipped mechanical, electronic, and woodworking shops. Equipped research laboratories are available for use in studies conducted at schools and other locations.

The University's Weig Computing Center has an IBM 3635, three PRIME 850 and two PRIME 750 computers. 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, and the psychology branch of the University's Main Library is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department are greatly benefited by the facilities and staff of other University and local agencies, including the University's Hospitals and Clinics Psychiatric Hospital, Mental Health, Public Welfare, and Addiction Programs; the University's Hospitals and Clinics Psychiatric Hospital, Mental Health, Public Welfare, and Addiction Programs; and the Health Research Center, and the School of Social Work, Development program.

Courses

For Undergraduates

Either 31:1 or 31:3 is equivalent, is prerequisite to all other courses in psychology. Only one of these two courses may be taken for credit.

31:1, 31:3, 31:14, 31:16, 31:17, 31:19, and 31:43 are open to freshmen who have satisfactorily completed an introductory psychology course, e.g., 31:1 or 31:3.

31:1 Elementary Psychology

31:4 Behavioral science as a behavioral science 31:1 or 31:3, different faculty members present lectures in seven hours of course; students are expected to become familiar with major behavioral science concepts through participation in demonstration discussions and in actual research studies, or through preparation of research reports. May not be taken pass-fail.

31:6 General Psychology

Same content as 31:1, but with additional discussion sections and greater emphasis on empirical methodology in the preparation of reports. Recommended for B.A. majors in psychology, open to all honors students, and to other qualified students on permission of instructor. May not be taken pass-fail.

31:10 Introduction to Clinical Psychology 3

Survey of present and historical developments in clinical psychology, considering various areas of concentration and forms of practice. May not be taken pass-fail.

31:11 Introduction to Child Psychology 3

Survey current research and theory in child psychology, including factors influencing moral, physical, and mental development. May not be taken pass-fail.

31:12 Introduction to Social Psychology 3

Research relating behavior of individual human beings to psychological, social, and environmental factors; social influence on personal and social behavior. May not be taken pass-fail.

31:13 Introduction to Mental Processes 3

Survey of the study of individual human factors: perception, attention, memory, language, thinking, problem solving, decision making, and thought processes considered from information-processing viewpoint. May not be taken pass-fail.

31:14 Introduction to Comparative Psychology 3

Consideration of non-human animal behavior in relation to attention, language, and consciousness; points of view concerning the evolution, mechanisms, evolution, and methodology. May not be taken pass-fail.

31:15 Psychology in Business and Industry

3

Approach to the application of psychology to the world of work; emphasis on personnel selection, training, and training, in industry. May not be taken pass-fail.

31:16 Evaluating Psychological Research 2

Development of skills required to critically evaluate the professional and public literature dealing with the scientific study of behavior. Includes sections on the scientific approach to the study of behavior, the nature of the relationship between theory and research, the ethics of research, the evaluation of statistical analyses, and the philosophy of psychological research.

31:20 Psychological Testing 4

A comprehensive study of the basic factors of psychological testing.
Internship Opportunities
The recreation education program places special emphasis on practical experience and student involvement of the profession and practitioners. Students are encouraged to attend state and national professional conferences, and the internship opportunities include internships in teaching, administration, and specialties in the field. Opportunities include internships in parks, marinas, and recreation areas.

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. Programs for these populations are available at all 50 state parks and are administered by the state parks department.

Financial Aid
Assistance is available to graduate students in the form of assistantships, teaching assistantships, and graduate assistantships. The program is designed to provide full-time graduate students with a stipend.

Public, Private, and Community Recreation
This area focuses on the development and administration of recreation programs, 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 population groups, such as senior citizens and youth, or on the development of community recreation programs, such as the development of community recreation programs.

Courses
Primarily for Undergraduates
15400 Inservice Education 3 a.h.
15410 Foundations of Recreation 3 a.h.
15420 Foundations of Recreation 3 a.h.
15430 Foundations of Recreation 3 a.h.
15440 Foundations of Recreation 3 a.h.
15450 Foundations of Recreation 3 a.h.
15460 Foundations of Recreation 3 a.h.
15470 Foundations of Recreation 3 a.h.
15480 Foundations of Recreation 3 a.h.
15490 Foundations of Recreation 3 a.h.
15500 Foundations of Recreation 3 a.h.
15510 Foundations of Recreation 3 a.h.
15520 Foundations of Recreation 3 a.h.
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15550 Foundations of Recreation 3 a.h.
15560 Foundations of Recreation 3 a.h.
15570 Foundations of Recreation 3 a.h.
15580 Foundations of Recreation 3 a.h.
15590 Foundations of Recreation 3 a.h.
15600 Foundations of Recreation 3 a.h.
15610 Foundations of Recreation 3 a.h.
15620 Foundations of Recreation 3 a.h.
15630 Foundations of Recreation 3 a.h.
15640 Foundations of Recreation 3 a.h.
15650 Foundations of Recreation 3 a.h.
15660 Foundations of Recreation 3 a.h.
15670 Foundations of Recreation 3 a.h.
15680 Foundations of Recreation 3 a.h.
15690 Foundations of Recreation 3 a.h.
graduate work in religion may be transferred into the program, on the recommendation of the student's committee and with the approval of the director. Students in either program will be required to earn 24 of their required semester hours in their designated major area, nine hours in their minor area, and three additional semester hours. Those whose major and minor areas are both in Western religion will be required to take one of the following three courses in Asian Religion as the three additional hours: Religion in India, Religion in China, Religion in Japan.

Requirements for languages and other research tools are to be determined by the student's committee. All M.A. students must pass that part of the Ph.D. qualifying examination (see below) in their major area.

Master of Arts in Religion and Health

Study of the role of religion in health and healthcare requires a combination of theoretical and clinical investigation. The University 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. Four may be earned at another accredited graduate or professional school. A maximum of six semester hours may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and health and related fields of ethics, religion in America, and other relevant fields outside the School of Religion. The student must also 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 student 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 32 semester hours of graduate course work. A maximum of 12 semester hours will be allowed for the dissertation. The student may elect one of two options for doctoral study.

In the first option, in consultation with the School of Religion faculty, the student develops a broad program which will give him or her a knowledge of three of the five areas in which the school offers graduate study:

Qualifying examinations, covering course work and readings in each of the three areas, provide an initial determination of the student's progress. Students entering with a master's degree or its equivalent must take qualifying examinations within two years of beginning doctoral work; other students must take them within three years.

Doctoral students must demonstrate competence in either French or German before taking the qualifying examinations. Competence in both languages must be demonstrated at least 12 months before the comprehensive examination. With faculty approval, another language may be substituted for either French or German. In some areas, however, there are special additional language requirements.

Students prepare for the oral and written comprehensive examinations under the supervision of a three-member faculty committee. The committee will determine three subjects for the comprehensive examination, including one subject closely related to the student's dissertation topic. The doctoral candidate must pass an oral examination on the dissertation. A student choosing the second option pursues one of six separate programs: Judaism and Christianity in the Hebrew World, History of theology and religious thought in the West, Contemporary theology and religious thought, Studies relating theology and other academic disciplines, History of Asian religions, Interdisciplinary program in religion and personality.

Application for admission to these programs may be made before or after enrolling for graduate study. Each of the programs is supervised by a faculty committee. Beginning with the third semester of graduate work and continuing up to the semester of the comprehensive examination, the student must submit to the supervising faculty the paper best representing his or her work that semester.

Depending on the student's program, the comprehensive examination will cover three or four fields. One field will be directly pertinent to the student's dissertation subject.

More detailed information on degree requirements and graduate study policies of the School of Religion is provided in the information for Graduate Students, which is made available to all applicants. It is regularly updated, so inquiries about any of the programs may be made to the director of the school.

Graduate Financial Aid

The School of Religion has available three types of financial aid: a teaching-research fellowship; teaching-assistantship; and research-assistantship. Awards are made annually on a competitive basis. Each-year students are ordinarily appointed only as research assistants.

Graduate Admissions

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 970 on the Graduate Record Examination (GRE) Aptitude Test and a 3.0 grade-point average for admission to the M.A. program, and a combined verbal-quantitative score of 1130 on the GRE Aptitude Test and a grade-point average of 3.2 for admission to the Ph.D. program. Also, three letters of recommendation and the submission of a significant writing sample are required.

Courses

211: Jesus-Collected Tradition
3.0
Study of the nature of religious and analysis of the historical Jesus and Judaism as well as the New Testament and Christianity.
212: Religion and Society
3.0
Students will examine fine-syntheses of religion, using lectures, films.
261: Easter for Seniors
3.0
Explores some aspects of the life and work of some of the most remarkable people of the Hebrew and Christian civilizations.
281: Africa, the East
3.0
Study of Africa and cultures and practices of Africa. Includes oral history and art, music, and literature.
282: Latin America
3.0
Religious thought and practice in the Latin American and Hispanic world, including the arts, culture, and the religious experience. Focus is on specific Latin American countries and cultures.
291: Introduction to Religion Studies
3.0
Introduction to the study of religion through an examination of selected issues in which religion has been and continues to play a significant role in social, political, and ethical life.
321: Old Testament Survey
3.0
Survey courses in the Old Testament.
3.0
however, is to help students clarify their own thinking and improve their own communication. Satisfactory proficiency in rhetoric is a requirement for baccalaureate graduation from the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). The Rhetoric Program's reading and writing rules apply to all University students, on a voluntary basis (see the "Services for Students" section of the Catalog). Courses 150 Rhetoric 4.5 hrs. Instruction and practice in speaking, writing, and critical thinking, with the focus on composition and criticism. Thematic content varies. Course content focuses on written discourse in public and academic life. Typically requires using library resources for amplifying and supporting ideas, adopting discourse to readers and listeners.

152 Rhetoric 4.5 hrs. Continued instruction and practice in oral and written communication with the focus on critical thinking, research, and argumentation; develops competence in research procedures; locating and evaluating information and diverse points of view; analyzing and synthesizing information; written expression; use of evidence; extended argumentation; extended essay; and analysis of texts, speech, and research projects.

153 Rhetoric 4.5 hrs. Instruction and practice in speaking, writing, and critical thinking with the focus on academic research and writing in both public and academic life. Typically requires using library resources for amplifying and supporting ideas, adopting discourse to readers and listeners. 155 Rhetoric 4 hrs. Improvement in rhetoric proficiency; regular assignments each week; writing assignments from current literature courses; and literary resources; develop effective study skills; vocabulary growth; reading sophistication; test-taking ability; employment of proof. Open to students having major difficulties. Credit for these courses is not applicable to another major course.

159 Rhetoric 3.5 hrs. After an initial sequence of writing, instruction focuses on advanced topics in rhetoric. Open to students not enrolled in another rhetoric course.

183 Rhetoric 4 hrs. Russian Department chair: Roy J. Parrett, Jr.
Faculty: professors Norman Luiher, Harry B. Reznik; associate professors Mary Beth Bischoff, James F. Burris, Christopher A. Munizj; instructors Michael J. Goldstein, Degrees offered: B.A., M.A.
The purposes of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. An important secondary objective of the program is to provide students with an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is seldom an end in itself but rather a complement to some other vocation. Accordingly, the department encourages all of its students to pursue a joint major and to develop their interests in related or complementary fields. With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines. Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools. A number of governmental agencies annually interview job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with a well-rounded background in area studies. Students who develop an exceptional facility with the language may pursue careers in literary and technical translation and interpretation.

Bachelor of Arts Students who major in Russian must complete the general College of Liberal Arts degree requirements (see the "College of Liberal Arts" section of the Catalog) and earn at least 28 semester hours of credit in advanced Russian courses. Required courses are:

41:109 Introductory Conversation 3 s.h.
41:110 Introductory Conversation 3 s.h.
41:111-112 Introduction to Russian I- II 6 s.h.
41:113-114 Fourth-Year Russian I- II 8 s.h.

Three of the following:
41:151 Russian Literature in Translation 1800-1860 3 s.h.
41:152 Russian Literature in Translation 1860-1917 3 s.h.
41:165 Tolstoy and Dostoevsky 3 s.h.
41:181 Soviet Literature in Translation 3 s.h.
41:186 Russian Culture 3 s.h.
41:191 Russian Civilization 3 s.h.

Students majoring in Russian are strongly urged to include related courses in economics, geography, history, or political science among their electives. Nearly every avenue of professional training and employment available requires a solid background in Russian area studies. For example, a recent statement on the criteria for U.S. Government employment cites a requisite "substantive knowledge of the area in history, economics, political science, sociological disciplines, scientific specialties, demography, military related skills, and some classical cultural and religious background," moreover, an "in-depth knowledge of literature or linguistics without other substantive background may be viewed as over-specialization in a field of limited practical use."

For senior in Russian the student must complete a minimum of 12 semester hours in the department beyond the second-year requirement of the two-semester sequence 41:111-112.

Honors Russian majors of junior or senior standing receiving a grade-point average of at least 3.2 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a semester paper constitute each honors work unit of these semester hours. Students may take up to nine semester hours of honors in Russian.

Summer and Study Abroad Programs The department vigorously encourages undergraduate and graduate students to participate in programs of study at language study both in the United States and in the Soviet Union. In recent years an increasing number of students (38 of 42 applicants, an extraordinary 92% have studied in summer, semester, and academic year programs at the University of Maryland, the University of Wisconsin, and the University of Michigan at Moscow. Other students have studied in summer and academic year programs in languages other than Russian in programs of study at various institutions of higher education in Russia and the former Soviet Union. Inquiries should be directed to the Russian department office.

Master of Arts Offered with or without thesis, the M.A. program in Russian offers two major emphases, in literary or in language studies.

The focus of literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers' styles, perceive literary techniques, recognize literary content, and develop an ability for sound criticism of form, content, and language of works in all genres.
Special Activities

Each year the department presents several guest lecturers and sponsored films. Students occasionally put on Russian plays. The student organization Russian Circle is 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 their conversational skills and to share experiences with other members of the University community. Participation in the Foreign Language House in Westwold Residence Hall is much encouraged by the staff and serves as a focal point for many Circle functions, including weekly meals with faculty and guest speakers. A number of outstanding students are inducted annually into Doro Silvers, the National Slavic Honor Society, and elected to a commemorative dinner.

Language Media Center

The University’s Media Center provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and short wave radios, tape and cassette recorders, record players, soundproof recording rooms, drill rooms, and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings are also available.

Courses

For Undergraduates and Graduates

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<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>411 First-Year Russian 1</td>
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<tr>
<td>412 First-Year Russian 2</td>
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<tr>
<td>413 Second-Year Russian 1</td>
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<td>411 or equivalent</td>
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<tr>
<td>414 Second-Year Russian 2</td>
<td>4 h</td>
<td>412 or equivalent</td>
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<tr>
<td>415 Russian for Reading 1</td>
<td>3 h</td>
<td>411 or equivalent</td>
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<tr>
<td>416 Russian for Reading 2</td>
<td>3 h</td>
<td>412 or equivalent</td>
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<tr>
<td>417 Readings in the Soviet Press</td>
<td>2 h</td>
<td>10 or 411 or equivalent</td>
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<td>418 Special Readings</td>
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<tr>
<td>419 Intensive Conversation</td>
<td>4 h</td>
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<td>420 Intensive Conversation</td>
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Primarily for Graduates

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<tr>
<th>Course</th>
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<tr>
<td>421 Russian Literature to 1863</td>
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<td>423 Russian Linguistics</td>
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<td>424 Reading in Russian Linguistics</td>
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<td>425 Russian Syntax and Style</td>
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<td>429 Russian Literature 1880-1917</td>
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<td>4210 Russian Enlightenment</td>
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<td>4211 Modern Russian Literature 1880-1917</td>
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<td>4212 Russian Poetry</td>
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<td>4213 Soviet Literature</td>
<td>3 h</td>
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<td>4244 Problems in Russian Literary Criticism</td>
<td>3 h</td>
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<td>4245 Preparation. Research Methods</td>
<td>1 h</td>
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<tr>
<td>4246 Special Readings</td>
<td>1 h</td>
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<tr>
<td>4247 History of the Russian Language</td>
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<td>4248 Modern Russian Rhetoric</td>
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<td>4250 Russian Civilization</td>
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<td>4251 Independent Research</td>
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Science Education

Coordinator: James A. Smyrnov
Assistant Coordinator: George W. Coors, Darrell G. Phillips, Edward L. Krivos, Daniel G. Shuster
Science Education/LIBERAL ARTS

Science education is a discipline concerned with the interface between science and society. The academic programs in science education therefore 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 a sequence in education.

Because science education is 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 a variety of departments.

The Science Education Program has attracted national and international attention. The program has received over $6 million in federal support since 1969. This support has helped establish a specific program for gifted and talented secondary school students, model teacher education programs, an extensive program of instruction and services for in-service teachers across Iowa, a skills program for assisting undergraduates in their studies of basic science, a history and philosophy of science sequence at the undergraduate and graduate levels, a program evaluation component, and a variety of special longitudinal research projects.

Undergraduate Programs

The undergraduate program in science education represents a transdisciplinary major in upper-level specializations while providing an appropriate option for students interested in education as it pertains to science teaching, the medical professions, allied health fields, or such areas as scientific journalism and law.

The science education major is not intended to prepare students for advanced study in one area of science. When the student's major is in the 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 after admission to the Graduate College.

All of the emphasis areas in science education have the following characteristics:

Depth in a general area of science, equivalent to three or six semester hours of scientific study.
Preparation in a second area of pure science, equivalent to two years or four semesters of scientific 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 ones); A view of science from a historical, philosophical/cultural perspective; and Experience with the application of scientific knowledge in a technological sense.

Outlines for the five areas of emphasis offered in science education are as follows:

**Biology Emphasis**

- 1 Introduction to Botany 4 s.h.
- 57 Principles of Animal Biology 5 s.h.
- 1 Elective in botany, microbiology, or zoology, including ecology, and physiology 14 s.h.
- 4:13-14 Principles of Chemistry I, II 6 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 4:17 Organic Chemistry I 3 s.h.
- 4:17 Chemistry Laboratory 3 s.h.
- 12:3 Principles of Physical Geology 3 s.h.
- 12:4 Principles of Historical Geology 2 s.h.
- 29:11 College Physics 4 s.h.
- Mathematics course at the level of 22:M11 or 225:8 or higher 34 s.h.
- 97:103 Societal and Educational Applications of Biological Concepts 3 s.h.

**Application of Science**

One approved course chosen with the advisor’s assistance; a wide variety of transfer courses from such areas as engineering, agriculture, and technical schools will satisfy this requirement.

**History/Philosophy/Sociology of Science**

- 97:128 Meaning of Science 2:3 s.h.
- 97:126 Science in Historical Perspective 2:3 s.h.

At least 25 semester hours of the sequence just outlined must be earned in 100-level courses.

**Environmental Studies Emphasis**

- 4:15-14 Principles of Chemistry I 5 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 2:1 Introduction to Botany 4 s.h.
- 3:3 Principles of Animal Biology 5 s.h.
- 37:128 Fundamental Genetics 3 s.h.
- 37:132 Ecology 4 s.h.
- Electives in Biology 7 s.h.
- 97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
- Electives in geology, geography, environmental engineering, and/or environmental health courses 15 s.h.

Mathematics course at the level of 22:M11 or 225:8 or higher 3:4 s.h.

**Application of Science**

One approved course chosen with the advisor’s assistance; a wide variety of transfer courses from such applied areas 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 sequence just outlined must be earned in 100-level courses.

**Chemistry Emphasis**

- 4:13-14 Principles of Chemistry I 5 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 4:17 Organic Chemistry I 3 s.h.
- 4:17 Physical Chemistry I 3 s.h.
- 4:17 Organic Chemistry Laboratory 2 s.h.
Chemistry Electives
29 11-12 College Physics
8 s.h.
Physical and Earth Science Electives
8 s.h.
22M:35-36 Engineering Calculus 1-2
4 s.h.
97-105 Societal and Educational 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 such applied areas 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 sequence just outlined must be earned in 100-level courses.

Physics Emphasis
26-11-12 College Physics 8 s.h.
or
26-17-18 Introduction to Physics I-1 8 s.h.
26-19 Introductory Physics III 4 s.h.
Physics Electives 8 s.h.
22M:35-36 Engineering Calculus 1-2
4 s.h.
4-13-14 Principles of Chemistry I-II 6 s.h.
4-16 Principles of Chemistry Lab I-2 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.
97-105 Societal and Educational Applications of Selected Concepts of Physics
3 s.h.

Application of Science
One approved course chosen with the advisor's assistance; a wide variety of transfer courses from such applied areas 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 sequence just outlined must be earned in 100-level courses.

Educational Course Work Required for Teacher Certification
To qualify for a secondary teaching certificate with endorsement to teach science, students must complete all College of Liberal Arts General Education requirements, the requirements for a Science Education major, and the following professional education courses:

Chemistry
4-13-14 Principles of Chemistry I-II 6 s.h.
4-16 Principles of Chemistry Lab I-II 2 s.h.
97-105 Societal and Educational Applications of Chemical Concepts
ar.
Chemistry Electives
10 s.h.

Physics
26-11-12 College Physics 8 s.h.
97-105 Societal and Educational Applications of Selected Concepts of Physics
ar.
Physics Electives
10 s.h.

General Science I
2-1 Introduction to Botany
28-61 General Astronomy 4 s.h.
12-3 Principles of Physical Geography 2 s.h.
c
1-4 Principles of Historical Geography
2 s.h.
4-15 Principles of Chemistry I
29-11 College Physics 4 s.h.

General Science II
(Environmental Studies Emphasis)
2-1 Introduction to Botany 4 s.h.
37-3 Principles of Animal Biology 5 s.h.
37-132 Ecology 4 s.h.
4-13 Principles of Chemistry I 3 s.h.
Electives in Environmental Engineering
3 s.h.
97-140 Problems in Integrating the Teaching of Environmental Science
Science
3 s.h.

Earth Science
1-2 Principles of Physical Geography 2 s.h.
1-2 Principles of Historical Geography 2 s.h.
28-61 General Astronomy 5 s.h.
Geology and Astronomy Electives
10 s.h.
97-102 Societal and Educational Applications of Earth Science Concepts and Topics
ar.

Special Rules
Since the Science Education Program involves large numbers of students heading for a variety of professional and graduate areas, large numbers of faculty advisors, and several colleges and departments, some special rules and regulations have been approved by the Science Education Advisory Committee of the College of Liberal Arts (consisting of the department executive officers of biochemistry, botany, chemistry, geology, physics-astronomy, microbiology, zoology, and science education). These special rules include:

At least ten semester hours of graded credit in science must be earned at The University of Iowa.
Transfer students using any of the
Graduate Programs
The Science Education Program offers graduate studies leading to the degrees Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy.

The M.A.T. program is designed for persons who have had strong undergraduate preparation in science and have decided after receiving the bachelor's degree that they wish to teach science in secondary schools.

The other graduate programs in science education are for persons desiring additional preparation in science and education for K-12 teaching, for persons interested in supervisory and/or administrative positions in schools, for persons interested in educational evaluation, for persons wishing to teach science in 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 28 s.h.
Science Specialization 12 s.h.
Minimum Total 40 s.h.

Master of Science Without Thesis
Science Education 9 s.h.
Science Specialization 20-25 s.h.
Correlated Studies 3-6 s.h.
Minimum Total 34 s.h.

Master of Science With Thesis
Science Education 9 s.h.
Science Specialization 20-25 s.h.
Correlated Studies 3-6 s.h.
Minimum Total 32 s.h.

Doctor of Philosophy
Advanced Science Education 24 s.h.
Research Dissertation 12 s.h.
Science Specialization 28 s.h.
*Correlated Studies 8 s.h.
Minimum Total (beyond master's degree) 70 s.h.

*Includes intensified science preparation, enriched science preparation, enriched professional preparation, integrative studies

Admission
Requirements for admission to graduate study in science education are identical with those of the Graduate College. The admission process is coordinated with the College of Education.

Special Programs
Iowa-ASSIST
Iowa-ASSIST is a special program in science education which involves in-service teachers in special curriculum revision 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 videoconference materials for awareness conferences and workshops.

In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 300 teachers and students from Iowa schools; sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Board, for about 400 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science-society issues; and each summer sponsors special workshops utilizing national authorities and enrolling 200 teachers, supervisors, and administrators.

Research
Each faculty member in science education is responsible for one or more lines of research. Major areas of faculty and graduate student research include:

- Philosophy and sociology of science
- Values education in science
- Science education program evaluation
- Educational technology
- Computer-assisted learning
- Simulation systems
- Classroom interaction studies
- Peabody
- Piagetian development psychology
- Cross-cultural experiences
- Health education
- Instructional psychology
- Teacher behavior
- Mathemagics activity
- Inquiry processes
- Instructional models
- Concept formation
- Aptitude X Treatment Interaction (ATI)
- Attitudinal and other affective outcomes of instruction
- Classroom sociometrics and climate
International Programs

Another dimension of the Science Education Center is its emphasis upon international education. A sizable number of foreign students are enrolled. The faculty has been involved for extended periods in 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 the modern Van Allen Hall near the center of the University campus.

Facilities on the fourth floor include the main office of the Science Education Center; a photographic laboratory; a departmental conference room; an office for coordinating two ASSIST, a model in-service program for assisting schools in implementing new national curriculum programs in Iowa schools; a suite of offices for student program activities; space for the elementary school faculty of the program; laboratories for the elementary school science methods course; and two large teaching laboratories.

The seventh floor includes central offices for the history and philosophy of science faculty of the science education and secondary school teacher education programs; a self-instructional laboratory in the history and philosophy of science, a library, a large seminar room used for summer courses and the second session of the secondary teacher education sessions, including many facets of the Iowa UPSET* model, multiple offices for graduate students; a common area for small group discussions and individual work and two large areas for small group and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary and special education majors.

Primary for Undergraduates

S376 Cooperative Education Internship 3 h.s.
S377 Fundamentals of Science 4 h.s.
S378 Investigations in Secondary Science: Laboratory investigations drawn from physics, math, and earth sciences; focus on problem solving and creative thinking. Application to natural sciences general education requirement.
S379 Investigations in Science 3 h.s.
S356 Science Survey 3 h.s.
S358 Science Foundations 3 h.s.
S353 Science Foundations II 3 h.s.
S390 Science Research Project 3 h.s.
S396 Science Research Project (Advanced) 3 h.s.
S373 Science Foundations 3 h.s.
S375 Science Foundations II 3 h.s.

Bachelor of Arts

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 development, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 63 semester hours of credit earned in departments cooperating in the social studies education program. Distribution of the course work is as follows: 12 semester hours in either U.S. or world history; 12 semester hours each in economics, political science, and sociology; at least 3 semester hours in geography; and 9 semester hours in geographic, anthropology, U.S. history, or world history.

Students pursuing a social studies education major will take survey courses introducing them to the various social sciences. Many of the departments also offer independent study and readings as alternatives to formal classes.

There is no separate honors 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 efforts.

A Global Studies certificate may be obtained in conjunction with a social studies major.

Admission Requirements

Transfer students must have earned a minimum grade-point average of 2.7 on all work done in the subjects of the cooperating departments in order to be admitted to the program. Approval of candidacy for the bachelor's degree will ensure that the student has a minimum 2.7 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts

Some graduates of this program are employed as teachers and chairs of social studies departments in junior and senior high schools. Others have taken the Master of Arts curriculum as a prelude to further graduate study in history, political science, public administration, public policy, or law.

Social Studies Education

Chair: Robert M. Faich
Faculty: unoccupied
Associate Professor: J. Randall Smith

Degree offered: M.A., M.D., Ph.D.
professional work in various correctional and penal institutions. For a small number of students, participation in the 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 38 semester hours of credit in graduate courses.

In one plan the student completes at least ten semester hours of course work in the cooperating departments, and may complete the remaining eight semester hours in one or among all of the cooperating departments. In the other plan the student completes at least twenty semester hours of course work in the cooperating departments and not more than ten in education, and may complete the remaining eight semester hours in either or both of his or her related departmental areas. Both plans require at least nine 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 must also complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education. The candidate must pass an oral and written comprehensive examination. The program offers a wide variety of educational experiences, depending on the candidate's fields of study. Possibilities include small group instruction, independent and dependent study and reading, computer experience, internship, 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 graduate credit in one area of social studies at an accredited institution, and must have a minimum grade point average of 3.0 on all work undertaken to date and must be a graduate student at the time of application. After declaring a major in social studies education, the M.A. candidate must maintain at least a 3.0 grade point average.

Doctor of Philosophy
Some graduates of the social studies education-opportunities program have gone into administration in institutions of higher education and are serving as presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school districts. Others are engaged in teacher education programs in colleges and universities, while others are college instructors in their areas of academic concentrations.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree, exclusive of foreign requirements established by the College of Education. These credits are to be distributed among the cooperating disciplines and professional education. Depending upon the background and needs of the candidate, the work in the disciplines chosen will comprise approximately 60 percent of the total 90 semester hours, work in education approximately 40 percent.

Depending upon the areas of study he or she chooses, the candidate will have an opportunity for regular classwork, small group instruction, independent study, fieldwork, and laboratory computer experience. Seminar and advanced work in courses numbered 200 or above is required in each of the areas of study. All candidates must complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education.

After completing most of his or her course work, the candidate must take a qualifying examination covering each of his or her fields of emphasis.

The candidate must complete and orally defend a dissertation based on original research in either of his or her academic fields of study or on some aspect of social studies education.

Admission Requirements
Admission to doctoral study in social studies education requires a bachelor's degree in social science or a related field at an accredited institution, a master's degree in history, a social science, or education; satisfactory performance on the Graduate Record Examination; and an academic record showing promise of scholarly success.

Facilities
Students in social studies education have access to the facilities and services of the cooperating departments and the College of Education. Special agencies and services are also available, such as the University Hospital-scholarships, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Information Center, the Curriculum Laboratory, the Statistical Consulting Center, the computer laboratory, and the Weigand Center.

The faculty members who serve as social studies education advisors and coordinators are experienced classroom teachers whose advanced degrees have been earned in history, the social sciences, and education. They are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses
The B.A. program prepares students for beginning professional social work practice. The goals of the program are to prepare students for employment in social agencies with children and families, public welfare, group services, health organizations, and corrections; to provide a base for graduate study in
social work or allied professions; and to prepare students for informed community participation in social welfare issues. The program is accredited by the Council on Social Work Education.

Undergraduate students majoring in social work must satisfy the general College of Liberal Arts requirements, excluding the general education requirement in social sciences. For general education requirement in natural sciences include 11:21 Human Biology. The following courses are required for the major:

Freshman/Sophomore Years

30:11 Introduction to American Politics 3 s.h.
30:110 The American Political System 3 s.h.
31:1 Elementary Psychology 3 s.h.
31:3 General Psychology 3 s.h.
34:1 Introduction to Sociology: Principles 3 s.h.
Any basic economics course 2-4 s.h.

Take in Sequence

42:22 Introduction to Social Work 4 s.h.
42:140 Human Behavior in the Social Environment 3 s.h.
42:141 Social Work Practice I 1 s.h.
42:171 Social Work Practice II 3 s.h.

Junior/Senior Years

42:119 Social Work and Discrimination 2 s.h.
42:127 Social Work and Policy 1 s.h.
Approved course from another department (see School of Social Work for list) 3 s.h.
42:142 Social Welfare Program and Policy 3 s.h.
42:144 Social Work Research 3 s.h.
42:193 Field Experience Seminar 1 s.h.
42:193 Field Experience 9-12 s.h.

A minimum of 12 semester hours of coursework 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.

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. Students interested in such a program should contact the school.

Admission

Admission to the undergraduate program in social work requires:

Completion, with at least a B grade of 42:22 Introduction to Social Work, which can be taken the sophomore year; at least a 2.25 grade-point average on a 4-point scale; and completion of the application process.

For more information, contact the coordinator of the undergraduate program in social work.

Master of Social Work

The M.S.W. program prepares social workers for leadership in the profession and for advanced social work practice either as generalists or in one of three concentrations. The common goals of the program, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change; commit themselves to making human service organizations responsive to people's understandable linkages between the society and the individual; and acquire intervention skills for working with individuals, families, small groups, organizations, and communities.

The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school including at least 36 semester hours earned after admission to the program. The student may obtain advanced standing for up to 12 semester hours of credit. Master of social work degree programs must be approved by the Council on Social Work Education. The student must complete an accredited graduate program in social work.

Students who complete an educational program in social work are eligible for a 12 semester-hour reduction of credits required for the M.S.W. With their advisors, they may plan an active role in assisting students in their educational planning. Students should explore additional mechanisms for obtaining credits.

The school operates a 12-month program. The summer session is a full semester. Full-time students may enroll for a maximum of 13 semester hours each semester. The core, students entering the program with an accredited undergraduate social work degree and with advanced standing may expect to complete the program in three or four semesters (i.e., the summer session or fall semester following full admission). Students requiring the entire 60 semester hours after admission generally complete the program the spring semester of their second year.

Students must maintain at least a 2.5 cumulative grade-point average, must be approved for M.S.W. candidacy, and must successfully complete a final examination project in lieu of the comprehensive examination. The student may elect a thesis option for credit, and the final examination is the oral defense of the thesis. Either the advanced research requirement or the final examination project/thesis must be related to the concentration selected.

The following in an outline of the M.S.W. degree requirements:

Core courses:

42:143 Human Behavior in the Social Environment 3 s.h.
42:141 Social Work Practice I 3 s.h.
42:143 Social Welfare Program and Policy 3 s.h.
42:144 Social Work Research 3 s.h.

Other required courses:

41:127 Social Work and Racism 2 s.h.
42:119 Social Work and Discrimination 2 s.h.
42:196 Advanced Research 2 s.h.
Required advanced practice courses:

42:203 Intercultural Communication and Change 3 s.h.
42:204 Human Services Administration 3 s.h.
42:201 Community Organization 3 s.h.

Concentrations/Generalist options:

9-9 s.h.
Concentrations (Individual, Family, and Small Group Services; Human Services Administration; Social Development); three additional courses in the concentration selected

Generalists: one course in each of three concentrations

Practicum 12 s.h.
Practicum Seminar 2 s.h.
Final Exam/Thesis 0-6 s.h.
Electives 10-13 s.h.
Total 60 s.h.

Concentrations

After admission, students may choose one of four plans of study. They may elect either to pursue advanced work as a social work generalist or to choose from among three concentrations. Concentrations focus on intervention at one of three levels of social systems. The generalist option is designed to provide students with advanced knowledge and skills across all three concentrations so that they are better able to sum a variety of functions within
a community. This is especially important and appropriate for students who aspire to work where they will need to have administrative and community development skills in new or changing environments. This service is also suitable for persons who want to be able to move across the lines of various types of social work practice rather than to be limited to a single type of practice. Practicum will include some opportunity for practice experience at each level of training.

Concentrators complete a minimum of nine semester hours of practicum in their concentration. In addition, either the advanced research course or the final project must be related to their concentration.

The Family, Child, and Group Services (FCGS) concentration prepares students to enhance individual, interpersonal, and social functioning through intervention with families, families, and small groups. It maintains a holistic perspective and awareness of the interrelationships between individuals and the social, political, and economic environments in which they live. Consideration is given to the biological, psychological, cultural, and social origins of behavior. The concentration seeks to develop in students practice competence both as enablers of personal change and as brokers/advisers for individuals and families.

The Human Services Administration (HSA) concept is designed to enable students to develop practice skills in administrative roles. Its focus is on management of large organizations or directing small organizations. It includes preparation for roles such as supervisor, program developer, or program administrator. It seeks to equip students with effective action to make human service organizations responsive to people and their needs.

The Social Development (SD) concentration is designed to prepare students to work at the community, neighborhood, and institutional level. Its focus is on developing more humanistic forms of organization and mutual support systems both domestically and internationally and on mobilizing alienated and oppressed people to move the scope toward equitable distribution of rights and resources. It seeks to develop skills in policy analysis, investigation, and collaborative research, negotiation, conflict resolution, social and political action, and community development processes. It recognizes that individual change and changes in social systems are important aspects of group and institutional change and the value system towards which change is aimed is distinct from that of the majority culture.

Satellite Centers
In addition to offerings on the Iowa City campus, the school offers both classes and practicum learning in Des Moines, Sioux City, and Quad Cities satellite centers. Regular classes and Social Work faculty are available for students seeking and teaching all required courses.

The center has three major purposes:

1. to offer the educational programs of full-time students by providing greater diversity of practicum opportunities to make pursuit of social work practice degree in social work geographically accessible to students unable to relocate to Iowa City;
2. to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on choices the student makes, practicum can begin as early as the second semester. Some students remain in the Iowa City-Cedar Rapids area for the remainder of their programs, but most are assigned to the Des Moines or Quad Cities Centers. This generally involves the student’s relocation.

The Des Moines Center, 115 miles from Iowa City, is the location of the state capitol. It is also the largest city in the state. Many full-time 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 784,000 people, this center also provides a wealth of practicum opportunities unavailable in Iowa City. Regular classes, student-planning agencies serving racial and ethnic minorities, and programs for the elderly are just a few examples. Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for some classes and special events.

The Siouxland Center, located in Sioux City in the northwest corner of the state, provides opportunities for part-time degree study and continuing education. It is different from the others in that a full program is unavailable here.

Intensive, short-term, split session courses are offered on the Iowa City campus in the summer for transfer from students from other centers taking on-campus courses.

Part-Time Program
The School of Social Work has one of the largest part-time programs in the nation. Admission and degree requirements are the same as for full-time students. The program enables single parents, working people, and others unable to pursue a degree on a full-time basis to complete the program. Part-time students complete the program in no more than twelve semesters with only two semesters of full-time registration (nine semester hours or more). Students may complete the part-time program in Iowa City or, in the Quad Cities or Des Moines Centers. The Siouxland Center also provides opportunities for part-time study toward the master's degree, although students cannot complete the entire program there. They must complete at least 12 semester hours of course work on the main campus or at the Des Moines Center.

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 its regular admissions process. Twelve semester hours in each program are applied to requirements of the other, thus reducing the time it would normally take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business, the College of Education, the American Studies Program, School of Religion, School of Journalism and Mass Communication, and others. Students are encouraged to use courses in other departments whether or not they are pursuing joint degrees.

Other special projects students may be involved in with the National Resource Center on Family-Based Services, operated by the school, the School of Social Work Gerontology Program, and the Institute on Urban and Regional Planning.

Another feature of the school is the opportunity it affords its students to participate in travel-study seminars each spring, a policy seminar-trips to Washington, D.C. Other urban, rural, and (inter) national seminars are available when there is sufficient interest.

Graduate Admission
The criteria for admission for full-time and part-time study in the M.S.W. program are:

- A bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities.

At least a 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of transferable advanced graduate course work (exceptions noted below).

Three positive letters of reference, including one regarding academic ability and one or more regarding social services or other work experience.
For Graduates and Undergraduates

Courses with numbers preceded by asc are required in the M.S.W. program.

4.420 Cooperative Education Internship-See Graduate Bulletin for listing.

4.419 Internship Communications

4.339 Social Security

4.337 Community Mental Health

4.401 Mental Health Problems for Disabled Students

4.35 Social and Development

4.360 Working with Adolescents

4.37 Social and Development

4.42 Human Behavior in the Social Environment

4.41 Social Work Practice I

4.32 Substance Use and Abuse

4.43 Social Work Practice II

4.31 Social Work Practice I

4.30 Social Work Practice I

4.29 Introduction to Social Work

4.28 Aging and Social Policy

4.27 Social Work Policy in Practice

4.26 Social Work Practice I

4.25 Social Work Practice I

A personal statement from the applicant about her or his interests and career objectives, and Quality and quantity of previous experience in the human services, undergraduate field experience, voluntary experience, and previous courses taken in social work, cultural, international experience and background, including minority status. In addition, the school requires personal interviews with applicants for admission to part-time study, and it requires foreign applicants 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 grade point average below 3.0. Those who are especially strong candidates on the basis of the other criteria may be selected as admissible. 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 are also encouraged to apply.

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

Throughout the Saturday and Evening Class Provisioning the experiences (cross- Social Work's De Mestas, Queen City, and Springfield, and other requirements) for students may enroll for courses and workshops. Twelve semester hours of graduate course work may be applied to the Master's requirements for students who later enroll in the program.

Courses Primarily for Undergraduates

4.32 Introduction to Social Work

4.30 Cooperative Education Internship

4.29 Introduction to Social Work

4.28 Aging and Social Policy

4.27 Social Work Policy in Practice

4.26 Social Work Practice I

4.25 Social Work Practice I

4.24 Introduction to Social Work

4.23 Social Work Practice I

4.22 Introduction to Social Work

4.21 Social Work Practice I

4.20 Introduction to Social Work

4.19 Social Work Practice I

4.18 Social Work Practice I

4.17 Social Work Practice I

4.16 Social Work Practice I

4.15 Social Work Practice I

4.14 Social Work Practice I

4.13 Social Work Practice I

4.12 Social Work Practice I

4.11 Social Work Practice I

4.10 Social Work Practice I

4.09 Cooperative Education Internship

4.08 Social Work Practice I

4.07 Social Work Practice I

4.06 Social Work Practice I

4.05 Social Work Practice I

4.04 Social Work Practice I

4.03 Social Work Practice I

4.02 Social Work Practice I

4.01 Social Work Practice I

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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 may provide a desirable background for employment in several fields, such as social services, criminal justice, personnel, applied social research, community organizations, and social science teachers in secondary schools. The program also provides a good background for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the degree prepares the students for work toward advanced degrees in sociology who qualify them for college or university teaching and academic, private, or governmental research positions.

Undergraduate students majoring in sociology should plan their programs in joint consultation with a sociology advisor or another from the student's intended career field.

An undergraduate student majoring in sociology may elect either a Bachelor of Arts or a Bachelor of Science degree program. Students interested in careers in the physical, biological, or social sciences are advised to seek the Bachelor of Science degree.

Both programs require 27 semester hours of course work in sociology, including:

34:1 Introduction to Sociology: Principles 3 s.h.
34:2 Introduction to Sociology: Problems 3 s.h.
34:13-11 Theory, Research, and Statistics 6 s.h.
34:15 Electives 15 s.h.

The student should complete the two-semester sequence of research methods course work early, to maximize his or her capacity to profit from the other sociology courses.

In addition to the sociology requirements listed above, students majoring in sociology require the following:

25:103 Introduction to Symbolic Logic 3 s.h.
or
25:104 Introduction to Philosophy of Science 3 s.h.
25:25 Elementary Statistics and Inference 3 s.h.

One of these three combinations:

25M:10 Fundamentals of College Mathematics I 4 s.h.
or
25M:11 Fundamentals of College Mathematics II 4 s.h.
or
25M:10 Fundamentals of College Mathematics I 4 s.h.
or
25M:20 Elementary Functions 3 s.h.
and
22C:16 Introduction to Programming with PASCAL 4 s.h.
and
22C:17 Programming Techniques and Data Structures 4 s.h.

Students with exceptionally strong high school backgrounds in mathematics may substitute 25M:25-28 Calculus I-IV for the mathematics option listed above. All majors are advised to take at least one basic course in history and philosophy, and six semester hours of course work in at least one of the following areas: anthropology, economics, geography, political science, or psychology. A list of complete 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 at least 12 semester hours in sociology at The University of Iowa.

Minors

In addition to major programs, the department provides supportive course work and several students 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 the following:

All departmental requirements for either a B.A. or a B.S. degree.

Two related fields of 12 semester hours each, taken from economics, geography, American history, world history, political science, and/or psychology (20 semester hours required in psychology) and

The professional courses required for certification (29 semester hours).

Sociology courses taken to fulfill the general education requirement in social science requirements may also 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 Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. To qualify for the Honors Program, students must have a grade-point average of 3.25 overall and in sociology courses. The Honors curriculum consists of listed-credit enrollment classes in which students are able to more thoroughly explore issues of mutual interest with faculty and other honors students. The special requirements for an honors degree in sociology are completion of the honors dissertation (34:100), the upper level hours course (see 34:195), and an honors thesis. The honors thesis provides students with an opportunity to do sociological research in consultation with a faculty member of their choice. As an option, honors students may take the honors section of 34:1 and, thereby, waive the general requirement of 34:2 Introduction to Sociology: Principles, introduction to Sociology: Problems for a degree in sociology.

Graduate Programs

The graduate programs in sociology are directed toward professional careers. Depending upon which program the student chooses, the master's program prepares the student for doctoral studies or for professional positions applying sociology. The doctoral program has a research emphasis and prepares sociologists for positions in colleges or universities or for work in academic, private, or governmental positions for research, using survey, experimental, and observational methods, are readily available in the department.

Master of Arts

The M.A. degree in sociology requires 30 semester hours with thesis of 38 semester hours without thesis. The program without thesis is intended for persons who desire a terminal degree and for those with wider range of courses in sociology is appropriate. As candidates for the M.A. degree must complete 34:201 History of Sociological Theory, 34:202 Research Methodology, 34:214 Elementary Statistics and Data Analysis, and 34:215 Sampling, Measurement, and Observation Techniques, with grades of B or higher.
MA. in Criminal Justice and Corrections
The program is designed for individuals who wish to work in criminal justice. It is assumed that a sociological orientation and background is extremely valuable for criminal justice work; therefore the major emphasis of the program is sociological. It is also recognized that specialized knowledge is essential for performing specific criminal justice functions, therefore the student may select 12 semester hours of course work in areas such as legal process, administrative procedure, or direct intervention techniques to develop some level of expertise. The flexible curriculum allows students in consultation with their adviser, considerate choice in selecting those courses that will be best enable them to achieve their career goals.
A limited number of students enter the program each year. To be a low faculty-student ratio is maintained. Information about admission 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 credit up to 12 hours of graduate work taken while enrolled in the college with the approval of the College of Law up to 95 hours required for the J.D., even though these hours are also credited toward an M.A. in sociology.
At the discretion of the student's M.A. committee, the Graduate College in sociology may credit up to 10 hours of law course work toward the M.A. degree. The cross-credit allowing a student to receive the J.D. and the M.A. by taking less course work than the sum of the numbers is necessary if the two degrees were pursued independently. This program is highly individualized and allows the student to explore various aspects of the relationship between law and society.

Doctor of Philosophy
The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate course work, including the post-M.A. course 34:216 Intermediate Statistics and Data Analysis and three elective hours in methods/statistics. Candidates must pass comprehensive examinations and write a dissertation.
All doctoral candidates are examined in the basic tool areas of sociology—history, theory of methodology, and statistics. In addition, each is examined on his/her major and one minor area chosen from among the areas represented by the faculty, such as social psychology, deviance, criminology, family, social stratification, organizations, demography, theory, methods, and statistics. A description of faculty interests is available upon request.
A detailed statement of regulations for graduate study is also available upon request. Prospective doctoral candidates should carefully examine this statement.

Graduate Admission
Admission to graduate study in sociology normally requires a minimum undergraduate grade-point average of 3.0 and a total score of 1160 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. In addition to fulfilling the Graduate College requirements for admission (see the "Graduate College" section of the Catalog), the applicant completes a departmental application statement and uses its personal reference forms in obtaining three letters of recommendation.
Applications may be submitted at any time, but should be completed two months before the start of the academic session for which admission is requested. The deadline for applying for departmental financial support is March 1.
Admission decisions are based on a comprehensive 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 developed graduate coursework 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. Inquiries concern 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. Enrollment in this program is currently limited to five admissions per year. A descriptive publication is available at the department office.

Graduate Financial Aid
The Department of Sociology offers three types of awards to graduate students: teaching assistantships, research assistantships, and teaching/research fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive assistantships will be given twenty hours each week for faculty members on teaching or research assignments. The department may also offer tuition scholarships to some students.

Facilities
Departmental facilities include a research laboratory, research project rooms, and the Iowa Urban Community Research Center (UICRC). The Research Laboratory consists of 18 rooms specifically designed for social psychological research. The facilities include a small-groups laboratory complex with audio and video equipment; two IBM PC computers controlling eight subject terminals; and an apparatus shop. The UIRCR maintains a research library and data banks. Surveys in the data bank are accessible for secondary analysis. (See the "Research Activities" section of the Catalog). Access to the University's main computers is available because of convenient remote facility (terminals and a batch printer) and a separate statistics laboratory containing terminals and a printer.

Courses
For Undergraduates Only
Courses open to freshmen without prerequisites: 24:1, 24:2, 14:15, 14:30, and 14:120. All other undergraduate courses are open to freshmen with stated prerequisites.

0:00 Cooperative Education Internship
Sociology students in the Cooperative Education Program register during work assignment periods in order to have a permanent record of their experiences. Open only to majors. May be repeated. Prerequisites: Sociology 101. (See Cooperative Program and Policy.

68 Introduction to Sociology: Principles
Examination of how individuals are organized into social groups, ranging from intimate groups to large-scale societies. Covers the study of society as a social structure, including social behavior, culture and society, socialization, group life, and social change. 3 hrs. Lecture. Credit toward the major in sociology.

69 Sociology in the Social Problem: Principles
Examination of social problems, including society, social structure, social organization, social change, social interaction, and social control. 3 hrs. Lecture. Credit toward the minor in sociology. 0 as prerequisite.

13:19 Theory, Research, and Statistics
3 hrs. Lecture. Credit toward the major in sociology. 30:70, or equivalent, recommended. Credit toward the major in sociology. 3 hrs. Lecture. Credit toward the major in sociology. 30:70, or equivalent, recommended. Credit toward the major in sociology.

13:17 Theory, Research, and Statistics
Credit toward the major in sociology. 3 hrs. Lecture. Credit toward the major in sociology. 30:70, or equivalent, recommended. Credit toward the major in sociology.

13:15 Understanding Social Science Research and
Credit toward the major in sociology. 3 hrs. Lecture. Credit toward the major in sociology. 30:70, or equivalent, recommended. Credit toward the major in sociology.

56:00 Water in Society
Credit toward the major in sociology. 3 hrs. Lecture. Credit toward the major in sociology. 30:70, or equivalent, recommended. Credit toward the major in sociology.
The department provides course work for undergraduate and graduate majors in Spanish or Portuguese for the satisfaction of foreign language requirements for baccalaureate and advanced degrees in other fields, and for the satisfaction of the second literature requirement for undergraduate majors in English and in Letters.

Knowledge of foreign language and culture is indispensable in many career areas. Students majoring in Spanish or Portuguese may find opportunities in such fields as business, transportation, industry, journalism, international broadcasting, and publishing, as well as teaching, research, library work, and translating.

Undergraduate Programs in Spanish

First- and second-semester Spanish courses introduce the four performance objectives—understanding, speaking, reading, and writing—through a four-skills focus and a policy of frequent testing of oral skills. Students thereby acquire a broadly based evaluation of their strengths and weaknesses and can calculate and plot their progress in preparation for future work.

Third- and fourth-semester courses are conducted on a dual-track basis, allowing students to enroll in sections having either a speaking or writing orientation or an emphasis on reading, writing, and content analysis.

Major in Spanish

The undergraduate major in Spanish consists of 30 hours of required course work, according to the following program:

Language (12 s.h.)

3 credits:

3117 Third-Year Spanish Language I
3 credits:

3118 Thrid-Year Spanish Language II
4 credits:

3137 Fourth-Year Spanish Language I
4 credits:

Literature (9 s.h.)

3 credits:

3101 Renaissance and Golden Age Literature
3 credits:

3102 Modern Spanish Literature
3 credits:

3103 Contemporary Spanish American Fiction
3 credits:

3104 Spanish American Poetry
3 credits:

3105 Spanish American Drama
3 credits:

3106 Short Story of Spanish America
3 credits:

3107 Spanish American Literature of Fantasy
4 credits:

3110 Survey of Pre-Twentieth Century Spanish American Literature
4 credits:

3 credits:

3111 Literature of the Discovery and Conquest of Spanish America
3 credits:

3112 Contemporary Latin American Novel and Short Story
3 credits:

3 credits:

3116 Representational Spanish American Novels
3 credits:

3 credits:

3150 Twentieth-Century Spanish Women Writers
3 credits:

3151 Nineteenth-Century Spanish Writers
3 credits:

3 credits:

3150 Representative Spanish Writers Since the Civil War
3 credits:

3 credits:

3151 Spanish Novels Since the Civil War
3 credits:

3 credits:

3152 Masterpieces of Modern Spanish Literature
3 credits:

3 credits:

3153 Representative Works of Golden Age Fiction
3 credits:

3 credits:

3154 Representative Works of Golden Age Poetry and Drama
3 credits:

3 credits:

3192 Representative Works of the Picaresque Genre

Civilization (3 s.h.)

One of the following:

3 credits:

3114 Spanish Civilization
3 credits:

3115 Spanish American Civilization
3 credits:

Electives (6 s.h.)

The electives may include any course in Portuguese (with the exception of 315 and for any other semester hours credit, at any number course 3100 or above) or more than four from semester hours may be elected in civilization courses—two semester hours in 3150 Spanish Conversation: Junior Level and 3155 Spanish Conversation: Senior Level—no more than three semester hours may be elected in Special Work courses and the following courses may not be elected to fulfill the requirements:

3 credits:

3126 Spanish Language Practicum
3 credits:

3129 Basic Program for Foreign Language Computer-Assisted Instruction
3 credits:

3131 Language Laboratory Equipment Practicum
3 credits:

3136 Language Teaching Practicum.
3 credits:

3154 Accelerated Elementary Spanish
3 credits:

3155 Accelerated Intermediate Spanish.

One course given in English may be taken to satisfy the three semester hours of this requirement, provided additional readings are done in Spanish.

High School Certification

Spanish majors who wish high school certification must complete the requirements listed above for the major in Spanish. Several courses in the College of Education are also required, as is one semester of practice teaching, taken in the senior year.
Minor

A minor in Spanish requires 16 semester hours of course work in Spanish taken at the University of Iowa or in a University of Iowa foreign study program including 12 semester hours at the 300 level. The seven courses listed below as not applicable toward the elective requirement for the Spanish major may not be applied toward the minor. No more than three semester hours of credit may be applied toward the minor from the following courses:

35:125 Introduction to Spanish 3 s.h.
35:127 Chicano/Puerto Rican Literature 3 s.h.
35:128 Introduction to Don Quijote 3 s.h.
35:140 Topics in Chicano-Puerto Rican Studies 3 s.h.
35:142 Film and Ideology 3 s.h.
35:145 Chicano Language and Culture for Teachers 3 s.h.
35:159 Latin American Studies Seminar 3-4 s.h.
35:179 Social 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 35:107 Fourth-Year Language I 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 of which are for the fall semester. A limited amount of credit earned in these and other foreign study programs may be approved toward the requirements for the major or minor in Spanish.

Honors

Admission to the honors program in Spanish requires a minimum 3.0 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, a total of 31 semester hours, including 35:121-122 Honors Literature and 35:125-126 Honors Latin American Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Undergraduate Programs in Portuguese

Major in Portuguese

Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Brazilian Portuguese and incorporate cultural material in the form of films and music.

Requirements

The undergraduate major in Portuguese requires the following courses, or their equivalents, for a total of 27 semester hours of course work beyond the second-year level:

Prerequisites

38:1 Elementary Portuguese I 4 s.h.
38:2 Elementary Portuguese II 4 s.h.
38:100 Accelerated Portuguese 0-5 s.h.
38:111 Intermediate Portuguese I 3 s.h.
38:112 Intermediate Portuguese II 3 s.h.
38:114 Intermediate Portuguese 3 s.h.

Required Courses (15 s.h.)

38:102 Topics in Portuguese Language (upper-division language) 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:107 Introduction to Portuguese Literature 3 s.h.

Two of the Following Courses (6 s.h.)

38:121 Portuguese for the Professions (upper-division language) 3 s.h.
38:109 Nineteenth-Century Brazilian Fiction 3 s.h.
38:110 Twentieth-Century Brazilian Fiction 3 s.h.
38:112 Novels in Luso-Brazilian Literature 3 s.h.
38:115 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 fields (e.g. Art, Anthropology, Comparative Literature, Geography, History, Latin American Studies, Linguistics, Sociology).

Minor in Portuguese

The undergraduate minor in Portuguese consists of 16 semester hours in Portuguese, including 12 semester hours of 100-level courses.

Offerings for Undergraduate Nonmajors

Undergraduate students in other disciplines may meet part of the College of Liberal Arts and Humanities and foreign civilization and culture general education requirements with 35:1-3 Contemporary Latin American Narrative, readings in English. The department offers several other literature and culture survey courses which are taught in English and are of general interest.

Latin American Studies Program

The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America, leading to a certificate in Latin American Studies.

Students receiving this certificate must have sufficient competency in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program see "Latin American Studies Program" in the Catalog.

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major. Deficiencies may be remedied with the appropriate coursework.

Required Course Work

Spanish phonology (either 35:157 Spanish Phonology or phonology component of 35:208) 3 s.h.
35:208-209 Graduate Spanish Linguistics I-II 8 s.h.
35:226 Competency on Don Quijote 3 s.h.
35:233 Seminar in Teaching 1 s.h.
35:251 Medieval Spanish Literature I 3 s.h.
35:253 Historical Ibero-Romance Language I 2 s.h.
Core in Golden Age literature 3 s.h.
Core in Modern Spanish literature 3 s.h.
Courses in Spanish American literature 3 s.h.
Electives bringing student's total to required minimum of 38 semester hours in the M.A. program.
The student is also responsible for the
works listed in the departmental reading list.

**Maximum Study Loads**

Maximum course registration is 16
graduate semester hours in the fall of spring
semesters, and 8 graduate semester hours
during the summer sessions. One-quarter and
three-thirds teaching assistants are permitted to
register for the maximum study loads. One-half time
students are permitted to register for no more than 14 semester
hours in the fall or spring semesters, and for not more than six semester hours
during the summer sessions. Additional hours may be taken only with Graduate
College approval.

**Transfer Credit**

A maximum of nine semester hours of
graduate credit approved courses may be transferred from other institutions
pursuing the S.B. or S.H. requirements for the M.A. degree.

**Teaching Certification**

Exclusive of the practice-teaching
requirement, graduate students may take the
courses necessary for secondary
Teaching Certification while completing M.A.
requirements in the department.

**Examinations**

Three written examinations and one oral
examination are given. For the written
examinations, the student must include
at least one topic each from two of these
three areas: (a) Spanish and Hispanic-
American literature must be represented;
(b) Medieval and Renaissance literature;
(c) Spanish American literature, or
Luso-Brazilian literature.

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**Doctor of Philosophy in Spanish**

Two doctoral programs are available.
Specialization in Hispanic literatures. Both
programs require a comprehensive examination the candidate must become
well acquainted with another Romance
language and literature (a Portuguese-
Brazilian program is especially
recommended). For the equivalent of a year of college
Latin, and demonstrate a reading knowledge of
another approved foreign language.

**Qualifying Examinations**, to be taken
during the second semester of residence
by all students, are abolished. M.A. work was
done at other institutions, consist of a
two-hour written examination covering
two to four literary works, or one major
literary work and authoritative criticism of the
work(s), as previously determined by the
student and the department; an oral
examination, and a research paper
prepared at The University of Iowa.

The second doctoral program provides
for specialization in Latin American
literature and literature with emphasis on
linguistics. Before his or her
comprehensive examination, the
candidate must complete a course in
linguistics and the equivalent of three
semesters of college Latin, and
demonstrate a graduate-level knowledge of
a second approved foreign language and
a reading knowledge of a third
approved foreign language.

In both programs, course work and
individual reading must be designed to
give the candidate a thorough knowledge of the
Spanish language, its literature, and
great civilization, from medieval to modern
times; provide adequate experience in a second Romance
language; and develop the candidate’s
capacity for critical analysis of literary
texts.

The following fields together with the
departmental doctoral reading test are
considered a basic minimal program for the
disciplinary degree. The requirement may be
fulfilled by acceptable studies at
another institution (except that seminar
requirements must be satisfied at
The University of Iowa) or by the courses at
The University of Iowa indicated in
parentheses. The requirement may also be
met by independent reading and
examination. The candidate is
encouraged to pursue further studies in
these and other areas, in line with his or
her particular interests and in order to
improve employment opportunities.

**Program I: Emphasis on Literature**

**History of the Spanish Language and Medieval Literature**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:251</td>
<td>Medieval Spanish Literature</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>35:252</td>
<td>Historical Spanish Linguistics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>35:253</td>
<td>Medieval Spanish Poetics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>35:254</td>
<td>Spanish Medieval and Renaissance</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>35:255</td>
<td>Modern Spanish Literature</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Golden Age Literature**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:220</td>
<td>Drama of the Golden Age</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:221</td>
<td>Cervantes’s Don Quixote</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:222</td>
<td>Fiction of the Golden Age</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:223</td>
<td>Masterpieces of Renaissance and Baroque</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:224</td>
<td>Lyric Poetry of the Golden Age</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:225</td>
<td>Medieval, Renaissance and Golden Age Spanish</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:226</td>
<td>Tirso de Molina Novel</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Modern Peninsular Literature**

Three of the following (at least one course must be selected in each
of the two centuries; a seminar may be
substituted for one of the courses, provided the two-century stipulation is met).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:228</td>
<td>Nineteenth-Century Spanish Novel</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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**Area A**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:248</td>
<td>Novel of the Mexican Revolution</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:271</td>
<td>Spanish American Novel of the Twentieth Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:225</td>
<td>American Literature of the Nineteenth Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:266</td>
<td>Images of Women in Latin American Literature</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Area B**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:232</td>
<td>Spanish American Essayistic and Thinkers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:242</td>
<td>Spanish American Literature of the Nineteenth Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:245</td>
<td>Images of Women in Latin American Literature</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Area C**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:231</td>
<td>Post-Modern Spanish American Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:251</td>
<td>Spanish American Poetry of the Twentieth Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:257</td>
<td>Modernismo</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:295</td>
<td>Lyrical Currents in Spanish American Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:276</td>
<td>Spanish American Love Poetry</td>
<td>3 s.h.</td>
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</tbody>
</table>

**Area D**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:231</td>
<td>Spanish American Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:245</td>
<td>Spanish American Short Story</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:246</td>
<td>Spanish American Short Story of Fantasy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:265</td>
<td>Masters of Spanish American Short Story</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Area E**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:211</td>
<td>Research Methods and Bibliography</td>
<td>3 s.h.</td>
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</tbody>
</table>

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**Contemporary Linguistics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:208</td>
<td>Graduate Spanish Linguistics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:215</td>
<td>Spanish Phonology I or Phonology component of 35:208</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Literary Theory**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:284</td>
<td>Types of Modern Competency</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Professional Training**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:211</td>
<td>Research Methods and Bibliography</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
35:233 Seminar in Teaching 1 s.h.

Seminars
Two 300-level seminars in literature taken at The University of Iowa 4 s.h.

Specialization
Students in program desiring to specialize in medieval literature, Golden Age literature. Modern Spanish literature, Latin American literature, or another approved area substitute courses in that area for one non-required course in each of the other areas. However, it is strongly recommended that, whenever possible, these courses be taken in addition to those in the basic program, as initial employment opportunities are enhanced by strong preparation in several areas.

Program II: Emphasis on Linguistics
History of the Spanish Language and Medieval Literature
35:251 Medieval Spanish Literature I 3 s.h.
One additional course in Medieval Spanish literature 2 s.h.
35:253 Historical parent-romance Language I 2 s.h.
One additional course in Spanish of comparative linguistics excluding courses listed below 3 s.h.

Comparative Linguistics
35:259 Comparative Romance Linguistics 3 s.h.

Golden Age Literature
35:255 Drama of the Golden Age 3 s.h.
35:226 Cervantes's Don Quixote 3 s.h.

Modern Peninsular Literature
One of the following:
35:220 Nineteenth-Century Spanish Novel 3 s.h.
35:221 Nineteenth-Century Spanish Drama 3 s.h.
35:222 Victorian Spanish Drama 3 s.h.

One of the following:
35:223 Twentieth-Century Spanish Poetry 3 s.h.
35:224 Twentieth-Century Spanish novel I 3 s.h.
35:225 Twentieth-Century Spanish novel II 3 s.h.
35:226 Twentieth-Century Spanish novel III 3 s.h.
35:227 Novela hispanoamericana 3 s.h.
35:246 Generación del '27 3 s.h.
35:247 Movimiento literario 3 s.h.
35:248 Generación del '50 3 s.h.
35:249 Latin American Literature 3 s.h.

Contemporary Linguistics
35:157 Spanish Phonology I or 3 s.h.

Phonology component of 35:208 Graduate-level phonetics/phonology 2 s.h.
35:208-209 Graduate Spanish Linguistics 6 s.h.
Additional graduate linguistics (excluding seminars below) 2 s.h.

Literary Theory
35:284 Types of Modern Criticism 3 s.h.

Professional Training
Assessment Research Methods and Bibliography 2 s.h.
35:233 Seminar in Teaching 1 s.h.

Seminars
Two 300-level seminars in Spanish linguistics taken at The University of Iowa 4 s.h.

Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations for Program I (Literary Track) assume a general knowledge of Spanish peninsular and Spanish American literatures and cover five broad fields, such as a literary genre or a historical literary period, chosen by the candidate so as to include at least two Peninsular and two Hispanic American Areas. Candidates following Program II, with emphasis on linguistics, take five examinations, at least four of which are required in a chosen area.

The length of time during which the doctoral examinations are taken is determined by the candidate. They may be taken during the course of a semester or limited to a shorter period. One four-hour and four-hour-three-hour written examinations are administered, followed by a two and a half hour oral examination covering the candidate's main field of study (45 minutes), the remaining fields (60 minutes total), and the Ph.D. reading list (45 minutes).

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of such 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 a graduate student's teaching and performance meet departmental standards, he or she will continue to receive support over a three-year period of time, unless not over five years. A broad willingness to financial support should apply directly to the departmental office.

All graduate students pursuing an advanced degree in the Department of Spanish and Portuguese 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 short-wave radios, tape recorders, record players, soundproof recording rooms, two studio rooms with 60 dual-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, 15 mm and 8 mm projection equipment and facilities, and a library of tape and disc recordings. The department offers to its majors a specific course in language laboratory procedures.

Spanish Courses
Primarily for Undergraduates
An undergraduate student who has had less than two years of high school study in Spanish will be placed in a first- or second-semester class. A student with two or more years of high school Spanish will be placed in a third- or fourth-semester class. Prospective or entering students should consult a departmental advisor. Students wanting more advanced placement may take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to courses previously completed.

A student may not, except with the approval of the chair, take for credit an elementary course after having completed a higher-level course for which the elementary course is an equivalent or prerequisite.

50:111 Spanish Grammar I 8 s.h.
50:112 Elementary Spanish I 8 s.h.
50:113 Elementary Spanish II 8 s.h.
50:212 Intermediate I 6 s.h.
50:213 Intermediate II 6 s.h.
50:214 Advanced I 6 s.h.
50:215 Advanced II 6 s.h.

50:210 Spanish for Teachers 3 s.h.

50:212 Intermediate I 6 s.h.
50:213 Intermediate II 6 s.h.
50:214 Advanced I 6 s.h.
50:215 Advanced II 6 s.h.

50:217 Spanish for Teachers 3 s.h.

50:218 Spanish for Teachers 3 s.h.
50:219 Spanish for Teachers 3 s.h.
50:220 Spanish for Teachers 3 s.h.
50:221 Spanish for Teachers 3 s.h.
50:222 Spanish for Teachers 3 s.h.
50:223 Spanish for Teachers 3 s.h.
50:224 Spanish for Teachers 3 s.h.
50:225 Spanish for Teachers 3 s.h.
50:226 Spanish for Teachers 3 s.h.
50:227 Spanish for Teachers 3 s.h.
acquired strong and competent of Spanish in a native environment, emphasizing on developing and refining their communicative and cultural competencies. Students must also be able to write and speak Spanish fluently and correctly.

321 Intermediate Spanish I
- Prerequisite: SPN 211 or equivalent.
- Course Description: An introduction to the present, preterit, imperfect, and future tenses. Students will develop their listening, speaking, and reading skills in Spanish through interactive classroom activities and cultural immersion projects.

322 Intermediate Spanish II
- Prerequisite: SPN 212 or equivalent.
- Course Description: Continuation of Intermediate Spanish I, focusing on advanced grammar, vocabulary, and cultural immersion. Students will engage in more complex conversations and written assignments.

323 Advanced Spanish I
- Prerequisite: SPN 222 or equivalent.
- Course Description: Advanced conversation and communication in Spanish, with an emphasis on cultural immersion and self-directed learning. Students will explore a range of topics in Spanish-speaking countries.

324 Advanced Spanish II
- Prerequisite: SPN 223 or equivalent.
- Course Description: Continuation of Advanced Spanish I, with a focus on advanced grammar, vocabulary, and cultural immersion. Students will engage in more complex written and oral communication.

325听说 (Speaking)
- Prerequisite: SPN 211 or equivalent.
- Course Description: A course in advanced speaking and listening skills in Spanish, focusing on conversational fluency and cultural immersion. Students will engage in role-plays and realistic scenarios.

326听说 (Writing)
- Prerequisite: SPN 212 or equivalent.
- Course Description: A course in advanced writing skills in Spanish, focusing on developing proficiency in writing complex, cohesive paragraphs and essays. Students will engage in creative writing and cultural analysis projects.

327听说 (Reading)
- Prerequisite: SPN 222 or equivalent.
- Course Description: A course in advanced reading skills in Spanish, focusing on developing proficiency in reading complex, cohesive paragraphs and essays. Students will engage in reading and analytical discussions of literary and cultural texts.

328听说 (Listening)
- Prerequisite: SPN 223 or equivalent.
- Course Description: A course in advanced listening skills in Spanish, focusing on developing proficiency in understanding complex, cohesive paragraphs and essays. Students will engage in listening and analytical discussions of audio and video materials.

329听说 (Grammar)
- Prerequisite: SPN 211, 212, 222, or 223.
- Course Description: A course in advanced grammar skills in Spanish, focusing on developing proficiency in understanding and using complex grammatical structures. Students will engage in grammatical analysis and writing exercises.

330听说 (Culture)
- Prerequisite: SPN 211, 212, 222, or 223.
- Course Description: A course in advanced cultural immersion in Spanish, focusing on developing proficiency in understanding and using complex cultural references and expressions. Students will engage in cultural analysis and writing exercises.

331听说 (Literature)
- Prerequisite: SPN 211, 212, 222, or 223.
- Course Description: A course in advanced literary analysis in Spanish, focusing on developing proficiency in understanding and using complex literary texts and authors. Students will engage in literary analysis and writing exercises.

332听说 (Film)
- Prerequisite: SPN 211, 212, 222, or 223.
- Course Description: A course in advanced film analysis in Spanish, focusing on developing proficiency in understanding and using complex film references and expressions. Students will engage in film analysis and writing exercises.

333听说 (Creative Writing)
- Prerequisite: SPN 211, 212, 222, or 223.
- Course Description: A course in advanced creative writing in Spanish, focusing on developing proficiency in understanding and using complex creative writing prompts and exercises. Students will engage in creative writing and writing exercises.
Portuguese Courses

031 Elementary Portuguese I 4 cr.
032 Elementary Portuguese II 4 cr.
Pre requisites: 031 or equivalent.
033 Intermediate Portuguese I 4 cr.
Pre requisites: 032 or equivalent.
034 Intermediate Portuguese II 4 cr.
Pre requisites: 033 or equivalent.
035 Advanced Intermediate Portuguese 4 cr.
Pre requisites: 034 or equivalent.
Review of grammar with emphasis on high frequency grammar. Reading and writing of short compositions, listening comprehension exercises and graded tests. A second year course. Pre requisites: 032 or equivalent.
036 Portuguese Language Placement 4 cr.
For sophomore level placement in Portuguese. Designed to determine language ability in non-faculty, but non-struc tural Portuguese-language environments, such as department sponsored conversation courses, cultural activities. Offered satisfactory-only.
037 Special Work 2 cr.
Pre requisites: consent of department chair.
045 Advanced Portuguese 3 cr.
Introduction to handling of Brazilian primary literature, designed for students with prior experience in other Romance-languages, reading, training in comprehension, speaking, listening, and writing modern Brazilian Portuguese, with an emphasis on speaking.
100 Modern Brazilian Fiction in Short Story 3 cr.
104 Modern Brazilian Fiction 3 cr.
103 Brazilian Literature I 4 cr.
Introduction to the language of Brazil, from its beginnings through the close of the nineteenth century. Representations of society, class, race, and the nation from pre-colonial times to the present. Class quizzes and final worth major portion of the final exam. Also worth major portion of the final exam. Class quizzes and final worth major portion of the final exam.
104 Brazilian Literature II 3 cr.
Society and culture of modern Brazil, notably urbanism, estruturalism, the Brazilian novel, and the cultural and intellectual literature. Includes works by Jorge Amado, Lygia Couto and Josue de Souza, Geraldo de Barros, Luiz de Camoes, Nelson Rodrigues, and Josue de Souza. Given in Portuguese.
107 Introduction to Portuguese Literature 3 cr.
078 Black Literature of Portuguese Expressions 3 cr.
Describes the social, political, and cultural aspects of the Portuguese colonial empire. Class work will be in Portuguese. Given in Portuguese.
109 Nineteenth-Century Brazilian Fiction 3 cr.
The history of Brazilian literature. The novel and the short story, and the development of Brazilian and modern prose fiction, with emphasis on important aspects of the life of the Brazilian writer. Includes works by Jose de Alencar, Antonio Mane de Azevedo, Joaquim Machado de Assis, Lemos, Bernardino Guerra, Teresa. Atualamento, Raul Pompalio, and Ubirajara, Given in Portuguese.
110 Twentieth-Century Brazilian Fiction 2 cr.
Major trends in Brazilian prose fiction since 1922, emphasizing interpretive aspects of styles and national development. Prerequisites: 031 or consent of instructor.
110 Topics in Late-Brazilian Literature 2 cr.
Advanced topics in Brazilian language and literature. May be offered for credit when topics differ. Prerequisites: 031, 032, or consent of instructor.
120 Culture and Civilization of the Portuguese 3 cr.
Introduction to modern Brazil. Angola, Guinea Bissau, and Mozambique through examination of historical background, government, military, political structure, social and economic development from colonial to present and through examination of the historical background. Prerequisites: 031 or equivalent. Offered in Portuguese.
133 Brazil: People and Culture 3 cr.
Introduction to novelist through study of Brazil's history, culture, arts and music, medicine and health, and their presentation in Brazilian literature. Seminars on topics in materials in English from the social sciences and the humanities.
040 Modern Portuguese 4 cr.
Introduction to Portuguese culture and society through study of the history, political and economic structures, art, and literature of the Portuguese people. Given special attention to issues relating to the 1700s. Major themes will include the influence of the Enlightenment and the Napoleonic invasion on Portuguese literature. Prerequisites: 032 or equivalent. Offered in Portuguese.
043 Advanced Portuguese 4 cr.
Emphasis on the further development of speaking and writing skills. Materials for classwork drawn from current Brazilian magazines, short stories, and plays. Prerequisites: 103 or equivalent.
143 Advanced Portuguese 3 cr.
Continued emphasis on Brazilian literature for students who have completed 031-038 and have an equivalent knowledge of the language. Prerequisite: 031 or equivalent.
175 Special Topics in Portuguese Linguistics 2 cr.
Prerequisites: Portuguese phonology, syntax, sociolinguistics. Prerequisites: Portuguese-English translation, and the reading of large and long texts. Prerequisites: 031-038 or equivalent. Consent of instructor.
190 Modern Portuguese Literature 3 cr.
Prerequisites: Portuguese 032 or equivalent.
191 Advanced Portuguese 3 cr.
Prerequisites: Portuguese 032 or equivalent.
192 Portuguese for Professions 2 cr.
Prerequisites: 032 or equivalent.
192 Portuguese for Professions 2 cr.
Prerequisites: 032 or equivalent.
199 Portuguese Language Practice 2 cr.
For junior and senior level students in Portuguese, designed to increase language ability in non-faculty, but structural Portuguese-language environments, such as departments sponsored conversation courses, cultural activities. Offered satisfactory-only.
199 Portuguese Language Practice 2 cr.
For junior and senior level students in Portuguese, designed to increase language ability in non-faculty, but structural Portuguese-language environments, such as departments sponsored conversation courses, cultural activities. Offered satisfactory-only.
199 Portuguese Language Practice 2 cr.
Prerequisites: consent of department chair. 021 Special Work 1-3 cr.
Prerequisites: consent of department chair. 021 Special Work 1-3 cr.
Prerequisites: consent of department chair.
Undergraduate Programs
Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curricula leading to B.S. or B.A. degrees in speech and hearing science do not qualify an individual to work professionally in this field but have as a primary purpose the preparation of students for graduate work. Hence, the undergraduate programs emphasize the normal processes of speech, hearing, and language. These undergraduate programs may also be taken by persons who want a degree in the College of Liberal Arts but who do not desire a career in this field.

The major requirements for the B.S. or B.A. degree in speech and hearing science are as follows:

116 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
105:119 Articulatory and Acoustic Phonetics 3 s.h.
3110 Anatomy of Speech and Hearing Mechanisms 3 s.h.
3112 Fundamentals of Speech Science 3 s.h.
3113 Introduction to Hearing Science 3 s.h.
3117 Psychology of Language III 3 s.h.
3118 Psychology of Language IV 3 s.h.
29:113 Introductory Audiology 3 s.h.
7143 Introduction to Statistical Methods 3 s.h.
1111 Elementary Psychology or
1131 General Psychology 4 s.h.
1 additional course in psychology, anthropology, or sociology 3 s.h.

Child Psychology
One of the following:
1114 Introduction to Child Psychology 3 s.h.
1103 Development of Children's Social Behavior 3 s.h.
1110 Learning and Motivation in Children 3 s.h.
1112 Development of Social Competence 3 s.h.
3114 Cognitive Development of Children 3 s.h.
3148 Individual Differences in Developmental Psychology 3 s.h.
1119 Growth and Development of the Young Child 3 s.h.
7196 Field Placement or a course in comparable content

Psychology of Personality
One of the following:
1113 Introduction to Clinical Psychology 3 s.h.
1116 Psychology of Personality 3 s.h.
3116 Psychology of Sex Differences 3 s.h.

Examinations covering the speech and hearing course work considered prerequisite to graduate study. The results of these examinations provide the student and faculty advisor with a basis for developing a plan of study.

The M.A. program with professional emphasis is designed to prepare clinicians in speech-language pathology or audiology who will be able to function independently in a variety of clinical settings. The M.A. program with professional emphasis will meet professional requirements and clinical certification by the American Speech-Language-Hearing Association. The department offers the M.A. with various emphases. Each requires a minimum total of 38 semester hours of graduate credit for a master's degree in this department.

All M.A. students must complete at least four semester hours of research registration. This may be accomplished by any combination of involvement in seminars (at 2 s.h.) and/or research hours. Completion of the research hours registration may consist of 11 work toward a thesis, or preparation of a paper involving any of the following alone or in combination: literature review, prospective development, and presentation of data.

A written product is required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. degree with professional emphasis are not required to present a thesis, although all students demonstrating research aptitude and interest are encouraged to do so.

All candidates preparing for the M.A. degree with written examinations 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 background of the individual students and their personal interests.

A. M.A. with Research Emphasis (General Program)

The typical 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. Additionally, the student is expected to complete a thesis and successfully complete a final oral examination.

B. M.A. with Professional Emphasis

Students seeking an M.A. with professional emphasis must fulfill requirements under 1 below, and, depending on specific interests, the courses listed under 2, 3, 4, or 5, below.

1. Offered as an elective or a course of comparable content:
2. 3163 Abnormal Psychology 3 s.h.
3. 3195 Behavior Disorders in Children 3 s.h.
4. 31170 Behavior Modification 3 s.h.

2. 31171 Scientific Research in Psychology 3 s.h.
3. 31172 Psychological Testing 3 s.h.
4. 31173 Clinical Psychology I 3 s.h.
Speech Pathology and Audiology/LIBERAL ARTS

3.182 Articulation Disorders 3 s.h.
3.185 Hearing Loss and Audiology 4 s.h.
3.214 Developmental Language Disorders 3 s.h.
3.244 Rehabilitative Audiology 3 s.h.
"7C:192 Counseling for Related Professions or 3 s.h.
3.100 Counseling Theories and Techniques 3 s.h.
3.510 Seminar Introduction to Research in Speech and Hearing 3 s.h.
Advanced seminars or research 4 s.h.
Additional semester hours of practical registration sufficient to meet supervised, direct clinical experiences for the Certificate of Clinical Competence of the American Speech-Language Hearing Association, and to provide broad supervised practical experiences.
*Equivalent undergraduate course will be accepted as meeting requirements.
3. Speech-Language Pathology, General Clinical Emphasis Courses listed under 1 and:
3.183 Stuttering 3 s.h.
3.912 Voice Disorders 2 s.h.
3.536 Neuropathologies of Speech and Language 3 s.h.
3.237 Deaf Pastoral and Related Disorders 2 s.h.
Additional practical, research, and elective courses.
3. Speech-Language Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools Courses listed under 1 and 2, and:
7E:104 Remedial Methods in Speech and Hearing 2 s.h.
7E:192 Laboratory Practice in Elementary School 5 s.h.
Additional practical, research, and elective courses.
4. Audiology, General Clinical Emphasis Courses listed under 1 and:
3.120 Fundamentals of Laboratory Instrumentation 3 s.h.
3.140 Manual Communication Skills 1 s.h.
3.240 Clinical Audiology and Hearing Aids 4 s.h.
3.241 Advanced Audiology 3 s.h.
3.242 Clinical Audiology and Hearing Aids 4 s.h.
3.243 Audiology Procedures for Special Populations 5 s.h.
Additional practical, research, and elective courses.
5. Audiology, School Hearing Clinician Courses listed under 1 and 4, and:
7E:104 Remedial Methods in Speech and Hearing 2 s.h.
7E:192 Laboratory Practice in Elementary School 5 s.h.
Additional practical, 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 in most other states.

Students preparing for clinical positions in public schools may 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 4 above, will meet the certification requirements of Iowa and most other states:

7E:110 Human Relations for the Classroom Teacher 3 s.h.
7E:104 Remedial Methods in Speech and Hearing 2 s.h.
7E:192 Laboratory Practice in Elementary School 3-5 s.h.
Education electives 8 s.h.

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in communication processes and disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program includes a broad range of courses to provide students with a broad understanding of the various modes of communication. These courses are designed 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 application of the knowledge to 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 will be developed from the courses offered in this department. Those in other departments (e.g., physics, engineering, psychology, mathematics, art, music, physiology, neurology, anatomy, and others) are also integrated into the research experiences.

The courses offered by this department is designed primarily for the Ph.D. Student (except the following. (Students interested in the specific areas of research and selected publication citations of the faculty are encouraged to write this department directly.)

1.200 Fundamentals of Laboratory Instrumentation 3 s.h.
2.201 Principles of Voice Production 3 s.h.
3.216 Language Acquisition 3 s.h.
3.216 Psycholinguistics 3 s.h.
3.220 Advanced Laboratory Practice 3 s.h.
3.224 System and Signal Theory for Speech and Hearing Sciences 3 s.h.
3.230 Speech Perception 3 s.h.
3.250 Auditory and Biomechanics of Speech 3 s.h.
3.252 Physiology of Speech Production 5 s.h.
3.254 Psychoacoustics 3 s.h.
3.255 Psychoacoustics Laboratory 4 s.h.
3.256 Physiological of Hearing 4 s.h.
3.255 Phonetics 0 s.h.
3.250 Seminar: Articulation and Language Disorders 2 s.h.
3.251 Seminar: Stuttering 5 s.h.
3.252 Seminar: Speech and Language Skills of the Mentally Handicapped 2 s.h.
3.253 Seminar: Voice 2 s.h.
3.252 Seminar: Cleft Palate 2 s.h.
3.256 Seminar: Rehabilitative Audiology 2 s.h.
3.258 Seminar: Neuropsychology of Speech and Language 2 s.h.
3.320 Seminar on Communication and Aging 2 s.h.
3.320 Seminar: Speech Science 2 s.h.
3.533 Seminar: Psycholinguistics 2 s.h.
3.535 Seminar: Psychoacoustics 2 s.h.
3.536 Seminar: Experimental Audiology 2 s.h.
3.537 Seminar: Clinical Audiology 2 s.h.
3.538 Seminar: Auditory 2 s.h.
3.560 Research 1 s.h.

Students in the Ph.D. program are normally expected to register for research credit during each semester of residence, so that they may complete the Ph.D. program within a reasonable time period.

Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer sciences, and information management is required of all students. Departmental requirements for the Ph.D. degree are optional, as the work is conducted by the student and the student's advisory committee.

Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project before, or as a part of, the comprehensive examination. The dissertation must be written under the direction of the dissertation committee, and must successfully complete and submit a dissertation supervised by one faculty advisor.
Admission and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments which supplement those specified by the Graduate College. A brief summary of these requirements is presented below. For more detailed information, contact the department chair.

Application Form

All applications 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 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 amount to qualification, the department admits few applicants with undergraduate grade-point averages below 3.3.

Completed applications must be received no later than February 1 for admission in the next summer session or fall semester. Late applications will be considered under special circumstances only if they are received no later than the preceding November 1.

Applicants to Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which application is made. The deadline for Fall Admission is approximately April 1 for summer session. July 1 for fall semester. November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admission application must be filed by the deadline for appointment applications specified below. Applicants will usually be notified of action on their admission within six weeks after their applications are complete.

Applications for Graduate Appointments

All information applies to all financial appointments administered by the department.

Graduate appointments usually begin only in fall semester. Students beginning study in the Spring semester or summer session are considered for appointments for the following fall semester. All graduate appointments are subject to the availability of funds.

Scarcities on the Graduate Record Examination (GRE) and the Graduate Record Examination (GRE) are routinely required for consideration for financial assistance.

Appointment applications must be received by February 1 to insure consideration for an appointment beginning the following fall semester. Initial appointment offers are generally made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training program enjoys great benefits from the fact that Iowa City is the health center of the state and that its health services facilities are easily available for the clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the University of Iowa Speech and Hearing Clinic: the division of speech and hearing in the Department of Otologyng—Head and Neck Surgery, Speech Pathology Service in the Department of Neurology, Speech and Hearing Service, University Hospital School; Pediatrics; Regional Child Health Specialty Clinic; Speech Pathology Service, Child Psychiatry; Audiology and Speech Pathology, Veterans Administration Medical Center. Directors of these programs form the Council on Speech Pathology and Audiology at the University of Iowa.

The University of Iowa Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, hearing, and language problems, and a 9-12 week summer residential program for children. These clinical programs give students supervised clinical experiences with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the University Speech and Hearing Clinic, the training may be supplemented in supervised clinical practice with elementary school children under arrangement with the various Iowa public Education Agencies; and in supervised clinical practice in speech and hearing services provided by the Department of Otologyng—Head and Neck Surgery, Department of Pediatrics, Department of Neurology, Regional Child Health Specialty Clinic, University Hospital School; Veterans Administration Medical Center, and St. Luke's Methodist Hospital in Cedar Rapids.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Werczel Johnson Speech and Hearing Center include resident and audiometric testing suites. diagnostic and remediation skills, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiology, psychophysiologic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the University Hospitals and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of many specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

2300 Speech Pathology and Audiology Cooperative Education Assignment 3.0 h.

2301 Clinical Experience in the Graduate Doctoral Office, first on a complete basis by Graduate students. and second, upon approval and completion, of Cooperative Education Assignment Instrument.

2302 Introduction to Hearing and Speech Processes 3.0 h.

Speech, language, and auditory behavior as fields of scientific study; description of major types of speech and language disorders.

2304 Hearing Seminar 1.0 h.

Readings, reports, preparation of papers, and discussion of research problems in specific areas of speech and language pathology and audiology. Open only to hearing seminar.

2306 Hearing Tests 1.0 h.

Prerequisites include knowledge of specific areas of speech and language pathology and audiology. Open only to honors students.

2308 Counseling Techniques and Practices 3.0 h.

Introduction to human beings and psychological theories as they relate to the adjustment of communication disorders, anthropological emphasis on theory with specific techniques to isolate and define speech and language disorder.

2310 Anatomy of Speech and Hearing Mechanisms 3.0 h.

Anatomical considerations of the structures and function of speech and hearing mechanisms; section on general neuroanatomy.

2312 Fundamentals of Speech Science 3.0 h.

Principles of speech, acoustic, perceptual characteristics of speech; principles and methods for the laboratory study of speech. Prerequisites: 2310, 3310, and 2913, or consent of instructor.

2313 Introduction to Hearing Science 3.0 h.

Normal auditory system: review of acoustics, acoustics, and auditory physiology; subjective aspects of auditory phenomena. Prerequisites: 3310 and 2913, or consent of instructor.

2314 Acoustics of Speech and Language 3.0 h.

Basic anatomy and physiology of the auditory nervous system; specific aspects of hearing as related to communication problems. Prerequisites: 2310, 3310, and 2913, or consent of instructor.

2315 Psychophysics of Speech and Language 3.0 h.

Theoretical and experimental approaches to behavioral models in the study of speech and language. Prerequisites: 3310 and 2913, or consent of instructor.

2316 Psychology of Language 3.0 h.

Theoretical and experimental approaches to behavioral models in the study of speech and language. Prerequisites: 3310 and 2913, or consent of instructor.

2317 Alternatives of Language 3.0 h.

Alternative modes of language acquisition, especially those in the development of human cognitive development. Prerequisites: 3310 and 2913.
Statistics and Actuarial Science

See "Division of Mathematical Sciences."

Urban and Regional Planning

Program chair: David J. Forneski
Fomayor: professors John W. Fuller, James L. Harris, Andrew W. Kindred.
Institute directors: David J. Forneski, James L. Harris, Andrew W. Kindred.
Adjunct professor: Andrew J. Stachok
Degree offered: M.A., M.S.
Planning encompasses the development of policy 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 issue areas as land use, transportation, housing, environmental quality, public services, and economic development. The University of Iowa planning program is a two-year master's program recognized by the American Planning Association. One of the few in the nation to approach planning from the perspective of policy analysis, the program is unusual in that it covers all branches of the field within the same framework (represented by the core curriculum), independent of distinctions between physical planning, social planning, or economic planning. This approach enables students to acquire the essential theoretical understanding and practical skills necessary to be effective planners, regardless of their chosen areas of specialization.

An independent academic unit administratively located within the Graduate College, the program has benefited from an opportunity to develop its curriculum and faculty interests without 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. This is reflected within the faculty, on the basis of previous training, include planning, architecture, public policy, economics, operation 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, history, classics, and philosophy. Almost half of the program's 65 graduate students are women. One-third are married, and two-thirds are from out-of-state. Largely because of the common core of courses students get to know each other, and a significant portion of the educational experience takes place in informal discussion groups.

Recent graduates of The University of Iowa planning program have assumed positions at city, metropolitan, and regional planning agencies, and in state and federal government. The past several years' graduates took oaths in all major urban-regions of the United States and in several foreign countries.

Curriculum Structure

The planning curriculum comprises a 48-semester-hour, four-semester (plus internship) program encompassing two academic phases. 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 issues, as well as the professional skills (e.g., report writing, presentations and negotiations, team management) that allow them to function effectively in various organizations and political environments. Students thus become well-versed in such tools as economic theory, quantitative methods, information presentation techniques, and approaches for public 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 public and social issues. The function of the core is to develop a common intellectual, cultural, and political framework present in resource allocation; an understanding of the institutions—the various social, economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices; a capability for redefining social goals and normative criteria for organizing society's resources; and analytic skills, both quantitative (e.g., statistics, forecasting, statistical analysis and nonparametric, e.g., scenario writing, input-impact assessment), that provide for the core accounts for 27 seminar hours. Core Courses

First Semester

102/205 Economics for Policy Analysis 3 s.h.
102/209 History and Theories of Planning 3 s.h.
102/209 Urban 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.
102:016 Economics for Policy Analysis 4 s.h.
102:220 Intermediate Analytic Methods 3 s.h.
102:300 Information Presentation 2 s.h.

Third Semester
102:101 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 allow students to select, evaluate, and organize information and arrive at conclusions in planning case studies. As students progress through the core, increasing reliance is placed on real or realistic planning problems. The intent here is to develop critical judgment and insight in the application of theory through case studies and extended field problems. Students may receive a waiver of any core course on the basis of previous training and experience.

The Sectoral Major
The second year of the program is directed toward the development of an area of concentration, the sectoral major. Its purpose is to apply the concepts presented in the core to specific issues. The student fulfills the sectoral major requirement by committing nine semester hours of credit in courses offered by various departments and schools of the University, including the planning program.

Currently, there are eight sectoral majors—land use, transportation, health, environmental quality, urban services, regional development, and urban management—and others can be designed by the student, subject to faculty approval.

Sectoral majors are organized around public policy areas, rather than emphasizing skills such as quantitative methods, public finance, or community organization. These skills, while important, are taught to all students as part of the core curriculum. As interest dictates, additional skills development is possible by selecting the appropriate electives.

The balance between core courses, a sectoral major, and elective courses allows students the opportunity to acquire a rigorous and consistent foundation for policy planning, specialized knowledge to enhance entry-level employment prospects, and exposure to other specialties within the planning field.

Other Requirements
A core examination is required for all students. The examination tests the skills and concepts with emphasis placed on the ability to synthesize material from the various core courses. A sectoral major examination is also required. A variety of options for meeting this requirement exist, including a major paper, several shorter papers, or a written examination. The paper(s) may have been written to meet specific course requirements.

A thesis is not required, although a student may petition to write one for up to six semester hours of sectoral major credit, in which case successful completion of the thesis satisfies the sectoral major examination requirement.

Each student is encouraged to complete an internship in a planning or related agency or organization and to submit a brief paper summarizing and evaluating the experience. Program faculty take an active role in assisting students to secure these internships. Alternatively, the student may elect to complete an additional two semester hours of credit, bringing the total to 50 hours.

Joint Programs
Law
The Urban and Regional Planning Program and the College of Law cooperate in administering a four-year program which satisfies the degree requirements leading to an A.M. or M.S. in Planning and a J.D. in Law. This is a reduction of one academic year from the total requirements of the two programs taken separately. Two separate admissions to both academic units are 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. or M.S. in Planning in a total of five academic years. In this accelerated program, coursework is reduced by one academic year from the separate requirements for the two degrees. Admission to the special program can be gained only by undergraduate students in engineering.

Preventive Medicine and Environmental Health
A joint master's 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. or M.S. in Planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.

Hospital and Health Administration
The Urban and Regional Planning Program in Hospital and Health Administration in the College of Medicine jointly administers a program for students interested in health policy planning and administration. This three-year program leads to an M.A. or M.S. in planning and to an M.A. in hospital and health administration. The program is reduced by one year from the separate requirements of the two degrees. Separate admissions to both academic units are required.

Social Work
A concurrent studies program is offered between the Urban and Regional Planning Program and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. One joint program prepares students to address the planning and policy issues involved in social service delivery. Twelve semester hours of credit in planning are accepted toward an M.S.W., and 16 semester hours of credit in social work are accepted toward an M.A. in planning. Separate admissions to both academic units are required.

Transportation
The transportation research and training program is offered through the Center for Transportation Studies. A transportation research and training program is awarded to students in academic graduate departments or programs within the University who satisfactorily complete a prescribed set of courses in transportation. These courses are taught through a single program and several other units on the campus. The program allows students with sectoral majors in transportation to obtain an additional credential. For particulars, see "Transportation Studies."

Financial Aid
Opportunities for students in the Urban and Regional Planning Program to receive financial support exist through a variety of sources: undergraduate and graduate scholarships, student employment, research assistantships, and internships in local agencies. All but tuition scholarships require from 10 to 20 hours of work per week, under the direction of a faculty member or professional staff. Beware miniscule applications for financial support, and awards are made on the basis of merit, experience, and interests. In recent years the program has been successful in providing support to a majority of enrolled students.
Admission

Admission to the Urban and Regional Planning Program is open to individuals having any undergraduate major or area of concentration.

Admission is based on Graduate Record Examination (GRE) scores (quantitative and verbal), letters of recommendation, and undergraduate achievement.

Applicants are requested to have the registration form and the above-mentioned materials submitted by March 15 for fall admission; or by November 1 for spring admission. Fall admission is preferred unless the student has substantial advancement preparation or expects to spend more than two years.

Courses

220:008 Cooperative Education Internship 3.5 hr

220:101 Introduction to Planning and Policy Development 3 hr

Historical development of urban problems and current policies; planning, practice, and issues at all levels of government; critical examination of national and local planning policies; and the resolution of social problems.

220:102 Case Studies in Urban and Regional Planning 3 hr

Survey of current issues, policy, and problems of urban and regional planning. Focus on current case studies; planning law, land use, health, and regional planning.

220:104 Introduction to Environmental Planning 3 hr

Identification and evaluation of environmental problems; comprehensive planning and natural resource planning; data-gathering methods and functions and the strategic review of socio-political processes in planning; and principal issues involved in review of plans and techniques.

220:105 Regional Development Policy and Planning 3 hr

Analysis of regional growth and development; interaction of population and planning; population, economic, and social factors; and methods for regional accounting; evaluation of policies for regional development.

220:106 International Planning and Development 3 hr

Overview of land tenure systems, market control, rent, and urban and development models. Immigrants, flight cities, and metropolitan areas. Different systems of regulation, finance, and physical distribution systems. See also 44:145.

220:107 Methods of Transportation Analysis 3 hr

Techniques for transportation planning, cost-benefit analysis, urban and transit. Development and evaluation of new transportation systems and real networks, and analysis of transport networks toward economic development. Same as 44:145.

220:108 Urban Development 3 hr

Economic analysis of public policies, metropolitan planning, urban and rural development, public and private policies. Urban and rural development policies, case studies, urban land-use issues. Present free market, socialism, and communist approaches. Same as GE-106.

220:109 Collective-Bargaining Policy 3.5 hr

Study of positive and normative theories of labor and management as they relate to the planning of an economy. Theories of the state, models of individual and group behavior, the policies of social change, possibilities for case studies in collective bargaining and its planning.

220:200 Fundamentals of Planning and Policy Planning 3 hr

Evolution of the urban and regional planning discipline and governmental, non-governmental, and professional organizations. The role of planning in the modern world and its relationship to the economic, social, and political processes of the modern world. The role of planning in the modern world and its relationship to the economic, social, and political processes of the modern world.

220:201 Urban Planning and Policy Planning 3 hr

Urban studies, urban design, and regional analysis, planning, management, design and housing of the family, urban and rural housing development.

220:202 Urban Law and Planning 5 hr

The legal and ethical aspects of the planning process, the role of the planner in decision-making, and the legal and ethical implications of land use planning.

220:216 Introduction to Analytical Methods 3 hr

Introduction to population and transportation, urban and regional studies, regional and metropolitan analysis, and regional and metropolitan analysis of transportation systems.

220:217 Environmental Policy Analysis 3 hr

Concepts of ecosystem and environmental planning, the role of the planner in decision-making, and the legal and ethical implications of land use planning.

220:218 Economic Analysis in Planning 3 hr

Concepts of ecosystem and environmental planning, the role of the planner in decision-making, and the legal and ethical implications of land use planning.

220:219 Methodology of Planning 3 hr

Introduction to the planning process, the role of the planner in decision-making, and the legal and ethical implications of land use planning.

220:220 Advanced Planning Methods 3 hr

Topics in advanced methodology applied to planning, urban and regional studies, urban and regional studies, and regional and metropolitan analysis of transportation systems.

220:221 Principles of Urban Design 3 hr

Urban form as a reflection of cultural forces and economic and social conditions. Focus on urban and regional planning, an analysis of the planning process, and the role of the planner.

220:222 Development Planning 3 hr

Role of state, local government in economic development, planning and development framework, development of plans and policies, industrial development, design codes, public infrastructure, public-private initiatives, public-private studies, and policy analysis.

220:223 Special Problems in Planning 3 hr

Study of cases in planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:225 Community Development 3 hr

University and neighborhood data, the role of university, neighborhood organization, and community development.

220:226 Environmental Policy and Planning 3 hr

Identification and evaluation of volatile resources in urban planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:227 Housing Policy and Planning 3 hr

Identification and evaluation of volatile resources in urban planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:228 Urban and Regional Planning 3 hr

Research in urban and regional planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:229 Methodology of Planning 3 hr

Methods of modern urban and regional planning. Urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:230 Urban and Regional Planning 3 hr

Research in urban and regional planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:231 Methodology of Planning 3 hr

Methods of modern urban and regional planning. Urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:232 Urban and Regional Planning 3 hr

Research in urban and regional planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:233 Methodology of Planning 3 hr

Methods of modern urban and regional planning. Urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:234 Urban and Regional Planning 3 hr

Research in urban and regional planning, urban and regional planning, and regional and metropolitan analysis of transportation systems.

220:235 Methodology of Planning 3 hr

Methods of modern urban and regional planning. Urban and regional planning, and regional and metropolitan analysis of transportation systems.
Transportation Studies

Transportation is among the most vital needs of modern society. In the U.S., as in other nations, numerous critical transportation problems and issues exist. The transportation system reaching an advanced stage of its life cycle, public transit operating deficits are magnifying, the quality of transportation services are not meeting public expectations, and many cities are becoming increasingly unlivable. Serious traffic congestion exists and extensive changes in transportation and planning practices are occurring.

Transportation planners and analysts increasingly need to find the need to draw on a number of somewhat disparate skills to respond to the challenges that they are certain to face. They will be required to analyze and forecast the movement of people and goods within and between cities, to identify the most efficient means for providing needed transportation services, to price these services properly, and to evaluate the amount of changes in transportation services on public and private land use, environmental quality, the local or regional economy, and various subgroups within society.

No, what planners can supply all of the means, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this fact, three academic units within The University of Iowa participate in an interdisciplinary transportation 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 degrees.

The Transportation Certificate program is coordinated by the Center for Transportation Studies, center, which administers 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 course credits, the transportation curricula of the three involved academic units have somewhat different emphases.

Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers degrees in transportation at both the M.S. and Ph.D. levels. The Ph.D. degree may be earned on either a non-thesis basis requiring a minimum of 72 semester hours of credit, or through a 30-semester hour thesis program that includes up to six semester hour of credit for thesis research. Non-thesis students usually are required to complete a research paper based on independent study that is defended at an oral examination.

The Ph.D. degree typically involves 72 semester hours beyond the B.S., of which up to 18 semester hour may be given for dissertation research. A minimum of one year of campus residency is required.

Individuals with degrees in transportation and 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

59263 Urban Transportation Planning 3 s.h.
102-260 Transportation Policy and Planning 3 s.h.
A typical master's level program includes the following courses:

First Semester:
- 62183 Statistical Methods in Econometrics 3 s.h.
- 44201 Geographical Analysis I 2 s.h.
- 1029020 Transportation Policy Seminar 3 s.h.
- 44350 Research Seminar Staff 1 s.h.

Second Semester:
- 62184 Methods of Quantitative Economics 3 s.h.
- 102261 Problems in Transportation and Land Use 3 s.h.
- 44202 Geographical Analysis II 2 s.h.
- 44350 Research Seminar Staff 1 s.h.

Third Semester:
- 621203 Microeconomics I 3 s.h.
- 53262 Urban Transportation Planning 3 s.h.
- 44134 Methods of Transportation Analysis 3 s.h.
- 44350 Research Seminar 1 s.h.

Fourth Semester:
- 44226 Travel Demand Modeling 3 s.h.
- 56170 Deterministic Operations Research 3 s.h.
- 44295 Regional Development: Theory and Policy 3 s.h.

Ph.D. students, in addition to taking the courses recommended for master’s students, are strongly encouraged to take advanced courses in areas such as economic operations research, regional development, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation. Applications should be made through the Graduate College and the Department of Geography.

Urban and Regional Planning:
The Graduate Program in Urban and Regional Planning offers the M.A. or M.S. degrees with a sectional 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 sectional 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 with workable options, evaluate these optional courses of action, and work toward implementation of policy solutions.

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by the core: the sectional major constitutes a minimum of new semester hours; and electives are taken to complete the remaining hours. If the thesis option is selected, up to six semester hours of sectional major credit are awarded. Students may elect to complete an additional two semester hours of course work in lieu of an internship, bringing the total to 50 semester hours.

A typical transportation sectional major program includes the following courses:

First and Second Semesters:
Core Courses (See "Urban and Regional Planning")

Third Semester:
- 102301 Field Problems in Planning 3 s.h.
- 102280 Transportation Policy and Planning 3 s.h.
- 102311 Transportation Program Seminar 1 s.h.

Two of the following courses:
- 44134 Methods of Transportation Analysis 3 s.h.
- 53262 Urban Transportation Planning 3 s.h.

Planning Electives 3 s.h.

Fourth Semester:
- 102261 Problems in Transportation and Land Use 3 s.h.
- 102265 Transportation 3 s.h.
- 53163 Transportation Systems Analysis 3 s.h.
- 44226 Travel Demand Modeling 3 s.h.
- Planning Electives 3 s.h.

When of the optional transportation courses a student selects is dependent upon individual interest. Elective courses typically selected include:
- 102228 Development Finance 3 s.h.
- 102234 Project Impact Analysis 3 s.h.
- 102241 Urban Public Services 3 s.h.
- 102245 Energy and Public Utility Policy and Planning 3 s.h.
- 102295 Regional Development: Theory and Policy 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

Women's Studies
Program Chair: Florence E. Bell

Faculty:
- professress Florence E. Bell
- professors Florence E. Bell
- professors Linda D. King
- professors和其他教员

Department:
- Women's Studies
- Women's Studies Program

Women's Studies Program:

The Women's Studies Program is a multidisciplinary program emphasizing the teaching and study of women in culture and history. The major aims to bring to the university community a focus on women as a group frequently overlooked by traditional disciplines. By taking courses through various departments, students become acquainted with the changing knowledge about women in the humanities and social sciences and learn new analytical skills and methodologies developed within feminist scholarship, which they may then establish as a field of concentration or apply to other majors.

Undergraduate Study:

Undergraduate students may complete a minor in women's studies by taking 18 semester hours in departmental courses associated with the program, including at least 12 semester hours in upper-level courses (numbered 100 or above), and maintaining a 2.0 grade-point average in these courses.

Undergraduates in the Bachelor of Science in Business Administration may choose a special area of concentration in women's studies.

It is strongly recommended that students completing a minor or concentration in women's studies take 131-101 Introduction to Women's Studies.

Undergraduates may also elect women's studies courses from those listed below.

Graduate Study:

Graduate students in master's or doctorate programs may choose a comprehensive area in women's studies within their major. Graduate students who wish to pursue the Ph.D. in women's studies may do so by filing a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College.

For information on faculty members in various departments who will direct graduate study, contact the Women's Studies Program, 335 English-Philosophy Building.

Associated Courses:

The departmental courses listed below are associated with the Women's Studies Program and may be applied toward a concentration or a minor in Women's Studies. Some of these courses are being cross-listed with the Women's Studies number. Please consult course schedules.
For detailed descriptions of the following courses, consult the appropriate department, school, or program in the Catalog.

In addition to the following courses many departments offer additional courses which from time to time may focus on women.

In addition to courses listed in the regular course schedule, women's studies courses for University credit are offered by the Saturday and Evening Class Program and by correspondence study.

American Studies
45.3 Women in American Culture Topics include pioneer women in America, women and urban America, writings of American women, women and work, women's popular culture, and lesbian lives and culture.
45.4 Family and Sex Roles: Alternatives to Marriage
45.7 Sex, Race and Ethnicity
50.15 Tues Work: Women and Literature
45.128 The Black Woman in America

Anthropology
132:156 Women's Roles: Cross-Cultural Perspectives
112:138 Economic and Political Development: Women's Roles (Same as 34:148).

Classics
14:103 Women in Antiquity

Communication and Theatre Arts
368:192 The Sexes and Film
35C:137 Sex Roles and Communication

General Education in Humanities
60:15 The Literary Presentation of Women

Gender Education
7C:150 Psychological Aspects of Women's and Men's Roles
7C:112 Human Sexuality Same as 49:112, 96:112
7C:162 Introductions to Marriage Family Counseling, and Psychotherapy
7C:262 M, Marital, Family Counseling, and Psychotherapy

English
81:181 Women in Literature
81:191 Changing Concepts of Women in Literature
81:185 Women Writers
81:134 Women's literature and Culture
81:434 Seminar: Twentieth-Century British Literature

General Education in Historical Perspectives
16:3 Problems in Human History: Communities, Families, and Culture
16:4 Problems in Human History: Women, Politics, and Society

History
16:158 Society and Gender in Europe: 1450-1750
16:159 Society and Gender in Europe: 1750-1914
16:181 Women in America: Colonial Period to 1870
16:182 Women in America: 1870-Present
16:287 Readings: History of American Women

Law
91:350 Sex Discrimination Law

Nursing
96:112 Human Sexuality Same as 42:112, 7C:115

Physical Education and Dance
28:109 Physiological Research on Women in Sport
28:153 Sociology of Women in Sport
28:204 History of Women in Sports

Psychology
31:116 Psychology of Sex Differences

Religion
32:111 Religion and Women

Rhetoric
10:3 Rhetoric

Social Work
42:112 Human Sexuality Same as 7C:112, 96:112
42:205 Women in Administration
28:236 Women and Therapy
28:273 Women and Social Change

Sociology
34:108 Women and Society
34:124 Courtship, Marriage, and Alternative Life Styles
34:168 Economic and Political Development: Women's Roles (Same as 110:138)
34:135 Sociology of Sexuality: Contemporary Social Patterns

"Only certain sections of these courses are Women's Studies approved.

Women's Studies Courses
Women's Studies presently offers three interdisciplinary courses with the program's own number (131).

131:1 Introduction to Women's Studies 3 s.h.
131:2 Introduction to Women's Studies 3 s.h.
131:3 Introduction to Women's Studies 3 s.h.

Zoology
Department chair: George D. Cain

Undergraduate Program
The undergraduate degree program in zoology provides a liberal arts background for a career in biologic science. Graduates may enter directly into government service or industry. The program also prepares students for certification at advanced degree programs leading to research, teaching (university, four-year college, community college, secondary, and primary schools), or health professions (medicine, dentistry, paramedical practice, medical technology, nursing, dental hygiene, physical therapy).

The basic courses offered in the department serve both its own majors and other planning to enter health-related professions, or fields such as psychology, entomology, and sociology, as well as students in other fields who have a natural interest in biological science.

A one-semester introduction, 37:3 Physiology, stresses the major concepts and is ordinarily the first course taken in the department. Majors must also take basic courses in genetics (usually immediately following the introductory course), evolution, and cell physiology.

Beyond this "core" curriculum, the student has a virtually unrestricted choice of 100-level courses in zoology, to a minimum of 32 semester hours. A student may substitute 100-level course work in other areas of natural science or in mathematics (excluding of the specific course requirements listed below) for up to 8 semester hours of the 32-semester hour requirements in zoology. Courses required for a B.A. or B.S. degree in zoology are:

In other departments:

BA-10 Expository Writing 3 s.h. (or equivalent, advisor-approved writing course)
Honor

Students in the college-wide honors program may earn an honors degree in zoology by completing a total of at least 6 semester hours in 37:199 Honors Laboratory Research, 37:197-198 Honors Readings in Zoology, and 37:198 Honors Seminar in Zoology. A 3.5 overall grade-point average as well as a 3.2 grade-point average in zoology courses are required. A research paper, approved by the research supervisor, is also required at the conclusion of honors research.

Introduction to Research

The department offers 37:199 Introduction to Research to acquaint seniors majoring in zoology 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 of 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; or service involving some planning or administrative functions. More than 80 percent of the doctoral students graduating from this department in the last two decades have been engaged in college or university teaching. A substantial number of students have completed their training with an M.S. degree with an emphasis on research in ecology, physiology, evolution, and zoology. On the basis of examination of results, the committee may be further work in one or all of these fields, or required to take special courses to enhance their backgrounds in these areas. The student must make up any deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree other than biology or zoology may request modification of certain of the area requirements; the student's degree committee will decide whether the student may waive one or more of the requirements. All members of the faculty in ecology and evolutionary biology are expected to participate in the graduate program. Areas of departmental research include cell biology, developmental biology, genetics, molecular biology, neurobiology, ecology, behavior, physiology, and parasitology.
to graduate courses in botany, and the remaining semester in plant electives. Following acceptance of the thesis, the candidate must pass a written examination covering graduate programs in botany and zoology. This is followed by an oral examination based mainly on the work reported in the thesis.

The botany and zoology departments also offer a 34-semester hour program leading to the M.S. in biology, without thesis.

Doctor of Philosophy in Zoology

Each Ph.D. student's formal course or proficiency requirements are determined by his or her departmental advisory committee. The committee also determines what portion of the formal course work or proficiency requirements the student must complete before taking the comprehensive examination. In this examination, the student is expected to demonstrate a knowledge of the fundamental sciences of zoology and a mastery of one or two specialized fields in zoology.

The student's research culminates in his or her preparation of a dissertation, which the student and the department must supervise the student's final examination. The examination covers the thesis and the specialized field the thesis represents.

Financial Aid

Nearly all of the graduate students in the department receive some support. The largest number from teaching assistantships, scholarships, and research assistantships, provided by the University or by individual research grants administered by faculty members. Stipends and full tuition are available through federally funded, interdisciplinary training programs in cell and molecular biology and neurobiology. These programs also support postdoctoral fellows. Support through interdisciplinary programs in genetics (predoctoral) and cancer (postdoctoral) is also available. The department also participates in the University-sponsored program of teaching assistantships for biology graduate students. Those applying for any departmental award may be considered for others, if the reviewing committee considers them eligible. The department provides some support each summer for students who arrange for training at research laboratories on the campus, or at other appropriate facilities.

Most graduate students have other appointments for the following academic year. The award is made April 1; but opportunities occasionally exist for appointments at other times, including the beginning of the spring semester. Requests for appointments should include clear statements of research interest, if such interest has been defined at the time of application.

Admission

An applicant for graduate admission should have a grade-point average above 3.0 and a Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative) score above 1320. The applicant should also take the Graduate Record Examination advanced biology test and submit his or her score. Although the department prefers applicants who have completed undergraduate programs much like its own, it will consider applicants with backgrounds in biophysics, biochemistry, and other related areas.

Facilities

The department is housed in a cluster of contiguous buildings. It has animal-care facilities for mammals, birds, reptiles, amphibians, fishes, and insects and other invertebrates, including protozoa, and special facilities for research with viruses, DNA sequencing, fruit flies, plants, and marine organisms. It has 12 walk-in and rearing environmental chambers for special culture or animal care needs. There are three transmission electron microscopes, including one for teaching and student research purposes; and one with high-resolution capabilities.

The department is equipped to carry out research in all areas in which graduate teaching is conducted. Light microscopes of a variety of types are available, including those with fluorescence, phase contrast and polarizing capacities, and those with Nomarski optics. Special facilities exist for computed image analysis. Centrifuges of various sorts, including refrigerated, high-speed, and ultra-high-speed units, are available. Other special equipment includes electrophoresis, gas-liquid and high-pressure liquid, and chromatography apparatus; electron microscopy and recording equipment for neurophysiological studies; a VAX computer; and other desk-top computers; gas-liquid and solid-state spectrometers of various types; and mechatronics and growth studio; grinds and incubators; recording ultraviolet and visible spectrophotometers, densitometers; Coater couplers; instruments for work in physical ecology, water tables, aquaria, and an "entire ocean" of microorganisms; tissue culture rooms and foils, and cold rooms. Laboratories are also equipped with advanced work which calls for specialized biochemical, biophysical, cytological, or semitechnical equipments.

Iowa Lakeside Laboratory

Courses in field biology and aquatic biology at the Iowa Lakeside Laboratory extend the on-campus work in ecology. See the "Iowa Lakeside Laboratory" section of the Catalog.

Courses

Primary for Undergraduates

30690 Cooperative Education 4 s.h.
31110 Introductory Animal Biology 4 s.h.
31115 Principles of mammalian biology, cell structure, enzyme metabolism, mollusks, echinoderms, corals and sea urchins, basic principles of development, ecology and systematics. This is an essential one-semester course in biology for pre-nursing, pre-dental majors, and speech pathology. It is a pre-requisite for students majoring in biological sciences, marine biology, and for those planning to take the examinations in marine biology, pre-medical physiology, and pre-medical technology programs. Prerequisites: A 160 or equivalent.
31125 Principles of Animal Biology 4 s.h.
Courses in basic organization, metabolism, cell regulation, respiration, development, genetics, behavior, and other related areas. These courses are not recommended for students who have not had advanced courses in biology, prerequisites for all courses in the department numbered 271-105 and above. Prerequisites: A 141 or B 131.
31175 Topics in Biology 1-4 s.h.
Informal lectures and discussions, enrollment limited to seven students per section; semester or topic chosen by section instructor. Primary for preparatory major: Prerequisites: B 113 and consent of course supervisor.

Elementary Topics of General Interest

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

31400 Biology of the Brain 3 s.h.
Exploration of levels of dominance by activity of brain components, and how components are modified by chemical regulators such as hormones, recent findings on specific regions, location of brain function cerebral cortex, brainstem, and cerebellum; discussion of current theories of behavior. Restricted to nonmajors.
31410 Introduction to Animal and Human Behavior 3 s.h.
Survey of principles and concepts in animal behavior and human behavior. Emphasis on effects of heredity and environment, determination of races in biological taxonomy, behavior genetics, behavior genetics, orientation of behavior toward teachers influence and motivation; role of environment in behavior. Restricted to nonmajors.
31505 Ecology of Human Populations 3 s.h.
Populations in human families and populations; genetic laws of parenteral mating, environmental factors. Extensive reading assignments. May be repeated for credit. Prerequisites: A 113 or equivalent.
31515 Genetics and Evolution 3 s.h.
Genetic mechanisms that characterize DNA and the gene; principles of variation in animals and plants; development of biologic organisms. Prerequisite: A 130 or course in biology.
31525 A Model in Chaos 3 s.h.
Same as B 135.

For Undergraduates and Graduates

31724 Comparative Toxicology 4 s.h.
Structure, function, and evidence of vertebrates, invertebrates, bacteria, taxonomy, detection, laboratory. Prerequisites: 271-1 37 or equivalent.
27.187 Lectures on Faculty Research 6 a.h. All incoming graduate students are required to attend, undergraduate seniors and other graduate students are encouraged to attend.

27.188 Field Biology 4 a.h. Field experiments on plants or animal. Discussions, written reports. Prerequisite: consent of instructor.

27.189 Developmental Neurobiology 2 a.h. Lectures, discussions, readings, reports on development of nervous system and sense organs, development of behavior, nerve growth and regeneration. Same as 37.109 or 37.104 or 37.168. Consent of instructor.

27.190 Seminar: Cell Structure and Function 2 a.h. Lectures, readings, and reports covering current literature in cell biology. Emphasis on organization of cell and its components. Prerequisite: course work beyond 37.125, with emphasis on membrane or genetics.

27.191 Virus and Organelle Assembly 2 a.h. Reviews of literature with emphasis on current problems. Topics will include the activity of tobacco mosaic virus, hepatitis B: behavior, hepatitis A, intracellular, extranuclear, and extranuclear. Consent of instructor.

27.192 Protein in Cell Research 2 a.h. A discussion, based on original research articles, of those areas in cell biology in which studies using proteins have contributed to the general understanding. Prerequisite: genetics and/or biochemistry or cell physiology.

27.194 Topics in Developmental Biology 2 a.h. Readings, reports, and discussions of selected topics in developmental biology, with special current interest. Prerequisite: 37.124 or consent of instructor.

27.195 Pattern Formation in Development 2 a.h. Problems of pattern formation and the development of patterns in all multicellular and cellular organisms. Prerequisite: consent of instructor.

27.196 Human Laboratory Research 1-3 a.h. For honors candidates.

27.197 Honors Readings in Zoology 1-3 a.h. For honors candidates.

27.198 Honors Seminar in Zoology 1 a.h. Discussions and reports centered on either single major topic or on regular lecture series of 27.121. May be repeated. Consent of instructor.

27.199 Introduction to Research 1 a.h. Primarily for seniors majoring in zoology. Prerequisite: consent of instructor.

Primarily for Graduates

27.211 Seminar: Plant-Animal Interaction 2 a.h.

27.212 Seminar: Ecological Writing and Criticism 3-5 a.h. Same as 22.110.

27.215 Genetics Seminar 5-6 a.h. Lectures, discussions, seminars, on selected topics in genetics. May be repeated. Prerequisite: 37.129 or consent of instructor. Same as 22.113, 22.115, 22.116.

27.217 Seminar: Zoology 5-6 a.h. Weekly lecture on current research: invited speakers

27.218 Electro Myelography Techniques 5 a.h. Lecture and laboratory on methods of tissue fixation, embedding, ultra-thin sectioning and staining, theory, use, maintenance of electron microscope, associated photographic techniques, case project required. Prerequisite: a course in cell biology and consent of instructor. Same as 21.204, 21.206, 21.207.

27.220 Seminar: Endocytology 5 a.h. Selected topics of current research interest in basic physiology and biochemistry of hormone action. Prerequisite: 37.126 or equivalent.

27.221 Fundamentals of Tropical Biology on Ecological Approach 5 a.h. A field course in Central America sponsored by the Organization for Tropical Studies. Limited to 10. Prerequisites: 27.124, 37.125, 37.129, 37.130 or permission of faculty. Offered in the spring and summer terms. Prerequisites: graduate standing and comprehensive examination. Same as 22.220.

27.303 Seminar: Ecology 2 a.h. Current concepts in ecology. Prerequisite: 37.130 or consent of instructor.

27.304 Advanced Techniques in Light Microscopy 2 a.h. Theory of modern techniques in light microscopy with some demonstrations, including bright field, dark field, phase contrast, Nomarski, fluorescence.

27.305 Seminar: Evolution 2 a.h. Topics to be selected from evolutionary biology. May be repeated. Offered spring semester. Prerequisites: graduate standing and consent of instructor.

27.306 Seminar: Behavior 2 a.h. Lectures, readings, reports on topics relating to behavior and behavior ecology. Prerequisite: a course in behavior, or consent of instructor.

27.306 Developmental Genetics 2 a.h. Lectures, readings, discussions on gene action in development. Offered irregularly. Prerequisite: 37.128 or equivalent.

27.307 Seminar: Behavior: Genetics 2 a.h.

27.310 Developmental Sciences Seminar 5-7 a.h. Open student faculty discussion of current literature in developmental sciences, emphasizing research design and behavior. Same as 37.106, 37.305, 72.365.

27.311 Seminar: Cell Physiology 1-2 a.h. Current topics studied through critical reading of the scientific literature. May be repeated. Prerequisite: 37.130 or consent of instructor.

27.312 Seminar: Cellular and Molecular Biology 1-2 a.h. Information transfer and regulation, assembly and developmental processes, membranes and transport, population of research results by students. Prerequisite: consent of instructor. May be repeated. May be combined with research training program and others interested, by consent of the instructor. Same as 89.079, 89.172, 71.172, 72.272, 72.273.

27.313 Seminar in Animal Genetics 1-2 a.h. Seminar report in molecular genetics discussed with emphasis on current literature. Prerequisite: consent of instructor.

27.314 Seminar: Neurobiology 1-2 a.h. Presentations of current literature. Prerequisite: consent of instructor.

27.315 Advanced Techniques in the Neurosciences 1 a.h. Electrophysiological and neurochemical course, presenting neurobiological techniques used by different laboratories throughout the university. Prerequisite: consent of instructor. Same as 37.124, 89.244, 71.344, 72.244.

27.317 Problems in College Biology Teaching 1 a.h. Experiments in philosophy, reading exercises, and examining in college-level biology courses. Prerequisites: graduate status.

27.360 Research: Zoology 2 a.h.

27.365 Independent Study in Zoology 2 a.h.
College of Business Administration

The college is organized into six academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resources Management, Sciences, and Marketing.

The undergraduate and graduate programs of the college are accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the external resources of the college: Industrial Relations Institute, Institute for Economic Research, Institute for Insurance Education and Research, Labor Center, Management Center, and Small Business Development Center.

Bachelors of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all six departments. The B.B.A. student completes business studies either in the College of Liberal Arts at The University of Iowa or in another institution, and usually enters the College of Business Administration as a junior.

The college's B.B.A. curriculum requires 120 semester hours for graduation, with at least 48 semester hours in business courses and at least 68 semester hours in nonbusiness courses. Limited specialization is offered through the student's designated major.

The last 30 (or 45 of the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration, and at least eight 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 attempted at the University, in all business and economics course work attempted, in all business and economics course work attempted at the University, in all course work attempted in the major, and in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetorical-communications 6 s.h.
- Historical-cultural 6 s.h.
- Literature 6 s.h.

*Natural sciences (excluding mathematics) 3 s.h.
*Principles of psychology or sociology 3 s.h.
*Social psychology 3 s.h.
*Quantitative methods 3 s.h.
*6A:1 Introduction to Financial Accounting 3 s.h.
*6A:2 Introduction to Managerial Accounting 3 s.h.
*6E:1 Principles of Economics 4 s.h.
*6E:2 Principles of Economics 4 s.h.
*6F:103 Introductory Financial Management 3 s.h.
*6M:100 Introduction to Marketing 3 s.h.
*5L:47 Introduction to Law 3 s.h.
*6L:100 Administrative Management 3 s.h.
*6K:70 Computer Analysis 3 s.h.

One of these courses fulfilling the requirement for a course in administrative processes under uncertainty.

6L:165 Business Policy 3 s.h.
6K:165 Business Policy 3 s.h.
6F:128 Managing the New or Small Business 3 s.h.
6E:178 Strategic Planning Systems 3 s.h.

Consult the Undergraduate Program Office concerning methods for meeting these requirements.

In addition, the student must complete a major area of study. The requirements for a specific major are established by the departments of the college.

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 of 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. Students must meet the general admission requirements of the College of Business Administration to be considered for admission to the business minor program. The courses listed below will satisfy all requirements for the minor in business administration:
A computer programming course 3 s.h.
A mathematics course (numbered 226 or higher) 3 s.h.
A statistics course (numbered 225 or higher) 3 s.h.
Principles of microeconomics 3 s.h.
Principles of macroeconomics 3 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6A:2 Introduction to Managerial Accounting 3 s.h.
A mathematics course numbered *BM:100 Introduction to Marketing Management* 3 s.h.
"EF:100 Introductory Financial Planning" 0 s.h.
*BL:100 Administrative Management* 3 s.h.
*GL:47 Introduction to Law* 3 s.h.
*"Must be taken in junior or senior year"*

Interested students should complete or be registered for the first seven courses listed above for admission to the Business minor program. The first seven courses listed above may be used to satisfy elective hours toward a baccalaureate degree and in some instances specific College of Liberal Arts requirements. Admission to the program is implied and meeting minimum standards does not ensure admission.

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 information on the CLEP examinations is available from the Liberal Arts Advisory Office.

Maximum Schedule

Course schedules of more than 18 semester hours for a semester or more for a summer session require approval of the Undergraduate Program Office.

Pass-Fail Grading

Credit hours toward any undergraduate degree are earned from the student's enrollment in the College of Business Administration. A student must earn at least 60 semester hours of credit, which are calculated on a pass-fail basis, to be eligible for graduation. A student may earn up to 32 semester hours of pass-fail or pass-norooms credit in the last 60 semester hours of course work. Courses with the grade of "P" may earn the student major credit. Pass-fail courses which are taken to satisfy the common business requirements may not be taken pass-fail, nor may courses in the student's major. Pass-fail or pass-norooms 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-fail basis, an earned grade of C or above is recorded as a B, whenever the grade earned (D or F) is recorded.

Second-Grade-Only Option

A student may repeat a course, if the Undergraduate Program Office approves and if double registration is not involved, and have only the grade and semester hours of the second registration used in calculating the cumulative grade-point average. This option may be applied to a maximum of 16 semester hours of work and may not be used more than once for a particular course.

Admission

The college normally admits undergraduate students at the beginning of each fall semester. Second-semester sophomores may be admitted if an accelerated program -i.e., record has been established. Unconditional admission requires a 2.25 grade-point average in all college-level courses undertaken, including all courses undertaken at The University of Iowa and all business and economics courses. The student should be in his second semester of college and have completed all prerequisites. The college academic standards are set by the Undergraduate Program Committee. Despite the above, the minimum requirements do not ensure admission.

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 and economics courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are fully accepted and are normally offered as lower division courses at this university. No credits are accepted for courses with fewer than 3 hours of credit.

The college admission standards are set by the Undergraduate Program Committee. For students who have deficiencies in meeting admission requirements, they may be granted conditional or probationary admission.

Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered by the College of Business Administration: Master of Arts in Business Administration (M.A.), Master of Business Administration (M.B.A.), and Doctor of Philosophy (Ph.D.) in business administration. Joint degrees options allow M.A. in business administration or M.B.A. candidates to pursue a second graduate degree in another college. For information on the Master of Arts (M.A.) in accounting, see the "Department of Accounting" section of the Catalog. For information on graduate programs in economics, see the "Department of Economics" 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 coursework in business is not required for admission. Depending upon the student's undergraduate academic background, 33 to 62 semester hours are required. For students with no previous business administration course work, 62 semester hours of course work are required. For students with course work in business administration, certain courses may be waived on the basis of proficiency examination or equivalent course work of high quality. A maximum of 24 semester hours of 200-level business courses may be applied in residence at The University of Iowa after admission to the M.B.A. program.

Undergraduate students at any institution may take courses as part of their undergraduate degree program which are equivalent to one or more of the M.B.A. foundation courses. For advice on these equivalencies, contact the Graduate Programs Office, College of Business Administration. In particular, seniors in the colleges of Liberal Arts and Engineering at the University of Iowa may pursue courses for professional and graduate training to satisfy elective requirements in their undergraduate degree programs. Strategic selected course work may allow such students to complete a bachelor's degree in four years and the M.B.A. degree in the fifth year.

Foundation Courses (27 semester hours)

6A:102 Financial Accounting—M.B.A. 3 s.h.
6E:190 Consumer and Firm Decision Making—M.B.A. 3 s.h.
6E:151 National Income Analysis—M.B.A. 3 s.h.
6E:161 Managerial Finance—M.B.A. 3 s.h.
6E:153 Computer Methods—M.B.A. 3 s.h.
6E:171 Quantitative Methods—M.B.A. 3 s.h.
6L:155 Management of Organizations—M.B.A. 3 s.h.
6L:148 Society, Law, and Business—M.B.A. 3 s.h.
6M:195 Marketing Management—M.B.A. 3 s.h.
In the M.B.A. integrated core courses, students continue the broad study begun in the sequence of foundation courses listed above and pursue in greater depth more advanced study associated with their own career objectives.
Following are the integrated core course requirements:

Integrated Core (18 semester hours)

- 5A.214: Management Accounting — 3 s.h.
- 6K.261: Administrative Science — 1-3 s.h.
- 6K.265: Administrative Policy — 3 s.h.
- 6L.265: Administrative Policy — 3 s.h.
- 6K.271: Statistical Methods — 3 s.h.
- 6K.273: Managerial Economics — 3 s.h.
- 6K.276: Operations Research — 3 s.h.

Electives (15 semester hours)
The student’s choice of electives must be approved by the Graduate Programs Office.

Off-Campus M.B.A.

Courses are offered during evening hours in Cedar Rapids and the Quad Cities. This program is sponsored jointly by the College of Business Administration and the Division of Continuing Education. In Cedar Rapids, these courses are offered in conjunction with the Continuing Education Association, and in the Quad Cities with the Quad Cities Graduate School located in Rock Island, Illinois.

A student pursuing the degree in the evening usually takes one or two courses each semester for completion of the degree program in three to five 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 on alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Further information about the program, fees, and application procedures may be obtained by writing to the Graduate 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 provides research emphasis which will qualify students for research or teaching positions or employment in business.

The program is available on both thesis and non-thesis bases and is sufficiently flexible to permit specialization according to students’ interests and objectives. Students may select a major in administrative studies, finance, industrial relations and human resources, insurance, and management systems. The minor may be developed from approved course combinations within the College of Business Administration or from outside the college.

All students in the M.A. program must satisfy the competency of knowledge requirement of the American Assembly of Collegiate Schools of Business (AACSB). This means that candidates’ undergraduate or graduate course work must include study in accounting, quantitative methods, organizational behavior, management, finance, marketing, and the economic and legal environment pertaining to profit and nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

- Major area: 9 s.h.
- Minor area: 6 s.h.
- Economic theory and organizational behavior: 6 s.h.
- Electives: 6 s.h.
- Thesis: 3 s.h.
- Total: 30 s.h.

Requirements for the Master of Arts degree without thesis include:

- Major area: 12 s.h.
- Minor area: 6 s.h.
- Economic theory and organizational behavior: 6 s.h.
- Electives: 6 s.h.
- Research methodology: 3 s.h.
- Research reports (two): 2 s.h.
- Total: 35 s.h.

In either program at least 18 semester hours of course work must be taken at the 200 (graduate) level. Additional course work beyond the minimum semester hours may be required in order to meet the prerequisites for graduate courses in a major or minor area of study.

Students in the thesis program will be expected to defend the thesis in an oral examination and may be required to take a written and/or oral comprehensive examination over course work. A final oral examination is required in the non-thesis program.

A non-thesis M.A. degree in industrial relations and human resources which varies somewhat from those in other departments is also available. Requirements for the Master of Arts degree without thesis in industrial relations and human resources include:

- Major area: 18 s.h.
- Foundation courses: 12 s.h.
- Business electives: 9 s.h.
- Research methodology: 3 s.h.
- Research reports (two): 2 s.h.
- Total: 35 to 41 s.h.

Applications — up to six semester hours may be waived with appropriate undergraduate preparation. The 35 to 41 hours is inclusive of all common body of business knowledge requirements mandated by the American Assembly of the Collegiate Schools of Business.

Doctor of Philosophy

The Ph.D. program in business administration is designed for students preparing for academic positions in research and teaching as well as for positions in business and government. The program is flexible permitting students to choose an area of specialization according to their wishes. Sufficient course work and related experience are provided so that students achieve competence in economic theory, statistical methods, accounting, and research as well as expertise in a major and minor area of study.

Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Most students (including all with master’s degrees from AACSB accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of business knowledge prerequisites or the Graduate College minimum total credit hour requirement (72 semester hours of graduate credit, including core course work before entering the Ph.D. program).

Prerequisite Courses

The common body of knowledge requirements of the AACSB must be satisfied by undergraduate or graduate courses. These include courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and nonprofit organizations.

Core Courses

Core courses are designed to develop common background and provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (three semester hours), economics (six semester hours), issues in societal-evolving enterprise, and research methods/statistics/quantitative analysis (12 semester hours).

To reflect the background and interests of individual students, doctoral candidates consult with their advisors to establish satisfaction of core requirements.

Major Area of Study

A minimum of 12 semester hours of approved doctoral level subjects must be completed in one major subject area: accounting, finance, human resources management, industrial relations, insurance, management science, marketing, or organizational behavior.
BUSINESS ADMINISTRATION

Minor Area of Study
A minimum of nine semester hours of doctorial-level courses beyond the Ph.D. core course requirements must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration.

Comprehensive Examinations
Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is comprised of a minimum of three faculty members. Upon satisfactory completion of the written comprehensive examinations, students must pass oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is comprised of a minimum of five faculty members.

Dissertation
A dissertation proposal must be presented before a forum attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 15 semester hours of dissertation credit. The completion of research and writing associated with the dissertation usually requires one year of full-time effort.

Final Examination
The completed dissertation must be defended in an oral examination attended by the dissertation committee members. It is also open to interested faculty and graduate students.

Graduate 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 Graduate Programs Office, College of Business Administration. Graduate Record Examination (GRE) scores of 550 or better in the verbal and quantitative sections of the GRE are required. See the "Graduate College" section of the Catalog for more information.

Application Information
A graduate application packet may be obtained from the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242. Students may apply for admission for fall, spring, or summer terms. U.S. citizens and permanent residents applying for the M.B.A., M.A. (Business Administration), and Ph.D. degree programs must submit a complete application by March 1 for summer session, May 1 for fall semester, or October 1 for spring semester matriculation. Foreign nationals applying for the M.B.A., M.A. (Business Administration), and Ph.D. degree programs must submit a complete application by March 1 for summer session or April 1 for fall or spring semester matriculation. Foreign nationals applying for the M.A. in accounting degree programs should see the "Application for Admission to the Graduate College" form for deadlines. Foreign nationals applying for the M.A. in accounting degree program should see the "International Application for Admission" form for deadlines.

A complete application file requires the following:
A completed application form and fee submitted to the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242. Official transcripts of all undergraduate and graduate work submitted to the Admissions Office by each institution attended. Official Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) scores submitted to the Admissions Office. At least three references from former instructors or employers submitted to the Graduate Programs Office, College of Business Administration, The University of Iowa, Iowa City, Iowa 52242. Foreign nationals (for whom English is not the primary language) must submit an official score of 550 or more on the Test of English as a Foreign Language (TOEFL).

Joint Programs
Joint Programs allow students to pursue concurrently an M.B.A. or M.B.A. in the College of Business Administration and a J.D. in the College of Law, an M.A. in library and information science in the Library and Information Science, or an M.A. in hospital and health administration in the College of Medicine. Such programs allow students to earn both degrees more rapidly by counting a portion of their graduate course work toward both degrees. Those joint degree programs carry an exchange of 12 semester hours each between the J.D. and the M.B.A., 9 semester hours each between the M.A. in library and information science and the M.B.A., and 15 semester hours each between the M.A. in hospital and health administration and the M.B.A.

Other Graduate Programs
M.A. in Accounting
(See "Department of Accounting" in this section of the Catalog.)
M.A. and Ph.D. in Economics
(See "Department of Economics" in the section of the Catalog.)

Facilities
The College of Business Administration is located in Phillips Hall, an air-conditioned 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 facilities for business and economics are maintained in the Main Library, and the facilities of the Weyer Computing Center are available to all students. Additionally, students have direct access to a computer laboratory within the college. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computer-related 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 total joint for applied economic research; and to promote and enhance academic research and teaching in economics.
Institute for Insurance Education and Research

The Institute for Insurance Education and Research is the college’s continuing education arm in the field of insurance. The institute conducts schools and seminars throughout the year at The University of Iowa campus in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

Labor Center

The Labor Center serves as the continuing education division of the college in the 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 is a major continuing education branch of the college and 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

In cooperation with the University Careers Office placement service, the College maintains an office where a business coordinator provides career counseling for business students and arranges recruiting visits for companies throughout the state and nation.

Alumni Relations

The College maintains an Office of Alumni Relations to act as host during visits of alumni, friends, recruiters, and others interested in the College.

Interdepartmental Courses

For M.B.A. students only

See individual department listings for additional M.B.A. course offerings.

4930 Categorical Statistical Methods M.B.A. 3 h.

4931 Written Communication Skills M.B.A. 3 h.

4932 Oral Communication Skills M.B.A. 3 h.

Currently available only to M.B.A. candidates.

Accounting


Professional Program in Accounting

The Professional Program in Accounting at the University of Iowa is a three-year upper-division and graduate program which leads to a Master of Arts (M.A.) degree with a major field in accounting. Students may elect to receive the B.B.A. degree after successful completion of the first two years of the Professional Program. The M.A. program (three-year program) is designed to develop the technical proficiency in conceptual, analytical, and communication skills required in the accounting profession. Students who wish to obtain undergraduate-level preparation for the Certified Public Accounting (CPA) or Certified Management Accountant (CMA) examinations may meet their graduation requirements by completion of 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 completion of two years of professional study which 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 may also apply for the M.A. program after completion of a bachelor’s degree with a major field in accounting from another institution (see program 2 below) or after completion of a bachelor’s degree in a field other than accounting (see program 3 below).

Admission information for program 1 may be obtained from the Graduate Program Office in the College of Business Administration, or from the head of the Accounting Department. Because of the heavy emphasis on oral and written communication in the M.A. in Accounting program, foreign nationals (for whom English is not the primary language) with TOEFL scores below 600 are rarely admitted.

Students in the first and second year of the Professional Program must maintain a 2.0 grade-point average overall and in upper division accounting courses. Students in the third year of the Professional Program must maintain a 3.0 grade-point average in all graduate level accounting courses. Students not maintaining these minimum grade-point averages are subject to departmental probation and elimination from the Professional Program in Accounting.

As a final condition for completion of the Professional Program in Accounting (three-year program) students must pass an oral examination.

All candidates for the M.A. degree are required to submit a score on the Graduate Management Admissions Test (GMAT) as a condition for admission to the third year of the Professional Program in Accounting.

All students should consult a current issue of the Suggested Plan of Study, published each semester, for current information regarding admission, prerequisites, program requirements, electives, and optional course planning.

Program 1

This program is for students completing their pre-professional program at The University of Iowa.

An undergraduate student at The University of Iowa who applies for admission to the Professional Program in Accounting after completing 60 semester hours should follow the typical requirements for the B.B.A. and M.S. in Accounting, including after earning grades of A or B in 14 hours of introductory accounting and in 14 hours in Introduction to Management Accounting, or equivalent, upon acceptance of their application to the Professional Program in Accounting, such students are designated accounting majors.

After successful completion of the first two years of the Professional Program in Accounting, a student can 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:131 Financial Accounting I 3 s.h.
6A:149 Introduction to Marketing 3 s.h.
6F:185 Financial Accounting II 3 s.h.
6L:126 Administrative Management 3 s.h.
Spring Semester
6A:122 Financial Accounting II 3 s.h.
6A:115 Introduction to Taxation 3 s.h.
6K:176 Managerial Decision Models 3 s.h.
6L:47 Introduction to Law 3 s.h.
6E:105 Elective 3 s.h.
Second Year
Fall Semester
6A:130 Cost Accounting for Management Analyzes and Control 3 s.h.
6C:103 Microeconomics 3 s.h.
6A:141 Advanced Tax Topics (or elective) 3 s.h.
6A:144 Auditing 3 s.h.
6E:105 Elective 3 s.h.
Spring Semester
6A:145 Financial Accounting II 3 s.h.
6L:149 Law and Business 3 s.h.
Policy elective 3 s.h.
6E:105 Elective 3 s.h.
Third Year*
Fall Semester
6A:220 Accounting Theory I 3 s.h.
6A:142 Advanced Tax Accounting (or elective) 3 s.h.
6A:143 Accounting Information Systems (or elective) 3 s.h.
6E:105 Elective 6 s.h.
Spring Semester
6A:221 Accounting Theory II 3 s.h.
6A:231 Research in Taxation (or elective) 3 s.h.
6A:230 Audit and Regulation of Accounting Practice (or elective) 3 s.h.
6A:202 Controllership (or elective) 3 s.h.
6E:105 Elective 3 s.h.
*These courses are available upon admission to the third year of the program.

Program 2
This program is for students who have earned bachelor's degrees with a major field in accounting at other institutions. Students who wish 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, 116 Calvin Hall, at The University of Iowa. Such students will normally be expected to take only the third year of the Professional Program (Program 1 above) to complete the M.A. degree.

Program 3
This program is for students who have bachelor's degrees with no prior training in business or accounting.
A student with an undergraduate degree in a field 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. A non-business undergraduate 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:182 Financial Accounting — M.B.A. 3 s.h.
6A:141 Managerial Accounting — M.B.A. 3 s.h.
6A:115 Introduction to Taxation 3 s.h.
6A:121 Financial Accounting I 3 s.h.
6A:122 Financial Accounting II 3 s.h.
6E:180 Price, Employment, and Production Theory 3 s.h.
6K:193 Computer Methods — M.B.A. 3 s.h.
6B:104 Managerial Finance — M.B.A. 3 s.h.
6M:136 Marketing Management — M.B.A. 3 s.h.
6K:197 Quantitative Methods — M.B.A. 3 s.h.
6K:271 Statistical Methods — M.B.A. 3 s.h.
6A:148 Law and Business 3 s.h.
These are the typical second-year courses:
6A:144 Auditing 3 s.h.
6A:220 Accounting Theory I 3 s.h.
6A:270 Advanced Financial Accounting — M.B.A. 3 s.h.
6K:261 Administrative Science — M.B.A. 3 s.h.
6K:265 Administrative Policy — M.B.A. 3 s.h.
6K:273 Managerial Economic Theory — M.B.A. 3 s.h.
Graduate accounting elective 6 s.h.
6A:253 Accounting Issues Series 0 s.h.

Doctor of Philosophy
See "Interdepartmental Graduate Program" at the front of this section of the Catalog.

Courses
Primarily for Undergraduates
6L:08 Cooperative Education Internship 1 s.h.
6L:09 Introduction to Financial Accounting 1 s.h.
6L:98 Introduction to Business Organizations and Methodology 1 s.h.
6L:104 Internship in Business Organizations 1 s.h.

Principles for Undergraduates and Graduates
6M:111 Tax and Business Decisions 1 s.h.
Introduction to important tax concepts. Emphasis is on personal taxes; business taxes are given less emphasis. Prerequisite: consent of management department. Course is not designed for accounting majors and will not substitute for 6A:115. Prerequisite: 6A:120 or equivalent.
6A:19 Introduction to Taxation 1 s.h.
Introduction to federal income taxation, with an emphasis on individual income taxation, corporate income taxation, and estate/probate income taxation. Prerequisites: consent of management department. Course is not designed for accounting majors and will not substitute for 6A:115. Prerequisite: 6A:120 or equivalent.
6K:29 Accounting Reporting 1 s.h.
Analysis of internal accounting reporting practices in the context of decision making. Emphasis is on current reporting practices, financial accounting measurement issues, and the role of non-financial information. Prerequisite: consent of management department. Course is not designed for accounting majors and will not substitute for 6A:115. Prerequisite: 6A:120 or equivalent.
6K:30 Accounting Information Analysis and Control 1 s.h.
Decision and preparation of information which will be used to support and appraise management in planning and controlling firm's operations. Includes cost analysis, variance analysis, budgeting, variance analysis, cost allocation, and other quantitative techniques integrated with more traditional approaches. Prerequisites: business administration major or equivalent, 6A:115, a grade of C or better in 6A:120, and microeconomics (6C:103) with a grade of C or better. Prerequisite: 6A:120 or equivalent.
6K:31 Financial Accounting 1 s.h.
Review of income statement and balance sheet account analysis, followed by reference coverage of asset and liability sections of the balance sheet. Prerequisite: admission to the Professional Program in Accounting or consent of management. Prerequisite: 6A:120 or equivalent.
6A:120 Accounting II 1 s.h.
Includes stockholders' equity section of the balance sheet, financial statement analysis, capital structure, investment analysis, and capital budgeting. Prerequisite: 6A:115, a grade of C or better for accounting majors, and a grade of B or better for non-accounting majors. Prerequisite: 6A:120 or equivalent.
6A:144 Auditing 1 s.h.
Examination of understanding the audit function as it exists in current business and government organizations; audit standards, ethics, and liability; audit evidence, including the application of statistics in sampling and analytical procedures; audit reports and the influence of governmental, regulatory, and professional auditing standards. Prerequisite: 6A:120, a grade of C or better for accounting majors, and a grade of B or better for non-accounting majors. Prerequisite: 6A:120 or equivalent.
6A:146 Valuation and Capital Markets 1 s.h.
Introduction to financial markets, investments, and related issues. Emphasis is on current valuation techniques for individual securities, corporate capital structures, and corporate reorganizations. Prerequisite: consent of management department. Prerequisite: 6A:120 or equivalent.
6K:28 Financial Accounting II 1 s.h.
Examination of the investment decision process as it relates to investment appraisal, working capital management, and financial planning. Prerequisite: 6A:120 or equivalent.
6A:184 Advanced Accounting Topics 1 s.h.
Introduction to advanced accounting topics, including advanced topics selected on the basis of student and faculty interest. Prerequisite: 6A:180 or equivalent.
6A:198 Special Topics in Accounting 1 s.h.
Introduction to advanced accounting topics, including advanced topics selected on the basis of student and faculty interest. Prerequisite: 6A:180 or equivalent.
6A:120 Accounting II 1 s.h.
Survey of current practice and thought relating to external reporting by firms to its investors, creditors and
Primarily for Graduates

243.119 Management Accounting—M.B.A. 3 s.h.
Internal financial management systems, accounting control mechanisms, management decision systems and models, market, nonmarket, economic, financial and statistical analysis, and financial analysis and valuation for students and professionals.

243.220 Accounting Theory I 3 s.h.

243.221 Accounting Theory II 3 s.h.
Includes quantitative analysis and asset measurement methods, bond and exchange issues in the selection among alternative accounting methods, and evaluations of financial reporting and planning alternatives. Offered spring semester. Prerequisites: MA 220 and either Sr. 142 or 447.

243.222 Accounting in Financial Systems 2 s.h.
Evaluating and designing accounting information systems, emphasizing the employment of the budgetary and financial decision processes, and the development of information systems. Offered fall semester. Prerequisites: BC 232 and BC 214.

243.228 Auditing and Regulation of Accounting Practice 3 s.h.
Focuses on auditing as a control function, as well as on government regulation and influence on current financial reporting and auditing. Examines the evolution of professional standards and the regulation of the practice of accounting. Emphasizes the relationship between accounting and the government agencies whose regulatory, legislative, and enforcement functions impact the profession. Prerequisites: BC 144 and ED 220.

243.230 Research in Taxation 3 s.h.
Current tax practices and procedures for preparing and filing individual income tax returns. Selection of material for presentation to accountants and other interested individuals. Tax-exempt organizations. Taxpayers and income tax. Offered fall semester. Prerequisite: BC 220.

243.234 Contemporary Issues in Accounting 3 s.h.
Current status of accounting issues, including: valuation; taxes; pension accounting; and leases. Emphasis on current issues and techniques. Selection of material varies from semester to semester, depending on the specific needs of the student population. Prerequisite: consent of instructor.

243.390 Advanced Tax Accounting for Graduates 3 s.h.
A graduate-level introduction to tax research and taxation of business organizations (corporations and partnerships). Tax problems. Prerequisite: ED 300.

243.391 Accounting Issues Seminar 3 s.h.
A course in which participants develop working sessions with accounting practitioners and financial educators to explore issues in public accounting and public policy. Offered spring semester. Prerequisite: consent of instructor.

243.392 Advanced Financial Accounting Problems 3 s.h.
Analysis of advanced accounting topics and contemporary problems, such as non-profit accounting and recent accounting standards. Designed for students who have not completed MA 145 or do not have an equivalent degree. Prerequisite: MA 130.

243.396 Seminar in Financial Accounting Theory 3 s.h.
Evolution of current and future development of a theoretical framework of accounting. Emphasis on the role of information economics, decision economics, and macroeconomics in the valuation and decision-making process in the modern capital market system. Offered for doctoral students.

243.391 Seminar in Managerial Accounting Thought 3 s.h.
General topics include measurement, research concepts, design, ethics for accounting and control systems, market and management decision-making systems, and non-market, economic, financial and statistical analysis. Prerequisite: consent of instructor.

243.396 Seminar in Research in Accounting 3 s.h.
Student research on contemporary issues in current research area in advanced research and critical discussion. Students write a paper that contributes to the body of knowledge and present results. Offered spring semester. Offered for doctoral students.

243.398 Seminar in Selected Accounting Topics 3 s.h.
In-depth study of selected topics presented in special areas of interest. Prerequisite: consent of instructor.

243.480 Thesis 3 s.h.
Prerequisite: consent of instructor.

Economics

Department chair: Thomas F. Pogue
Faculty: professors William Ackerman, Jairis Barkett, Benjamin Smith, John Tube, Taitio Oliva, James staffers, Brian Smith, Chris Heidt, Jorge Novak, David Nick, Thomas Pogue, Andrew Puch, Andrew Foote, Rachel Gosling, Justin Nordvoir, Andrew H. Harris, John Kenman, Forrest Reiams, Raymond Reiam, assistant professors Steven Lumbard, David Mokrsky, John King, John Bower, Charles Swaneman

Departments offers B.A., B.S., B.B.A., M.A. in E. E. and Business economics, in particular in economics and business economics, in particular in economics, and Business and economic planning and budgeting, business and economic planning, labor economics, and labor economics, courses required for the M.A. degree.

243.183 Statistical Methods in Econometrics 3 s.h.
243.201 Price Theory 3 s.h.
243.204 Macroeconomics I 3 s.h.
243.205 Economic History of economic thought 3 s.h.
243.206 Methods of Quantitative Economics 3 s.h.

In addition to the above core courses (15 semester hours), the student must pass in Statistics a course in 30 hours of electives and electives in one of the two 200-level economics courses, for a minimum total of 34 semester hours of electives and graduate courses.

A student who performs well in the first semester of the M.A. program may apply for transfer into the Ph.D. program that time, without loss of credit.
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<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 180 Mathematics for Economists I</td>
<td>3</td>
<td>Introduction to mathematical methods used in economics, including linear algebra, calculus, and optimization.</td>
</tr>
<tr>
<td>6E 183 Statistical Methods in Econometrics</td>
<td>3</td>
<td>Techniques of statistical analysis and econometrics, including regression analysis, hypothesis testing, and model specification.</td>
</tr>
<tr>
<td>6E 203 Microeconomics I</td>
<td>3</td>
<td>Study of microeconomics, including consumer behavior, supply and demand, elasticity, and market structures.</td>
</tr>
<tr>
<td>6E 204 Macroeconomics I</td>
<td>3</td>
<td>Study of macroeconomics, including national income, saving and investment, monetary policy, and inflation.</td>
</tr>
<tr>
<td>6E 181 Mathematics for Economists II</td>
<td>3</td>
<td>Continuation of 6E 180, focusing on advanced mathematical techniques and their application in economics.</td>
</tr>
<tr>
<td>6E 205 Microeconomics II</td>
<td>3</td>
<td>Advanced study of microeconomics, including market structures, oligopoly, and game theory.</td>
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<tr>
<td>6E 206 Macroeconomics II</td>
<td>3</td>
<td>Advanced study of macroeconomics, including monetary and fiscal policy, and international economics.</td>
</tr>
<tr>
<td>6E 211 Mathematical Economics I</td>
<td>3</td>
<td>Introduction to mathematical economics, including optimization and dynamic programming.</td>
</tr>
<tr>
<td>6E 221 Econometrics I</td>
<td>3</td>
<td>Introduction to econometrics, including regression analysis and hypothesis testing.</td>
</tr>
<tr>
<td>6E 222 Econometrics II</td>
<td>3</td>
<td>Advanced econometrics, including time series analysis and panel data.</td>
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</table>

Field Component

Each course covers 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 of a field and courses that enable the student to understand the relationship between his or her specialty and related fields. The student must achieve at least a 3.2 grade point average in the major area courses.

Dissertation

The student must prepare and defend a dissertation prospectus during the third year. Admission to candidacy is granted upon success of that defense. Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Courses

Primary for Undergraduates

Note: 6E 1 and 6E 2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

Economics Evolutionary History

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<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6E 1 Principles of Economics</td>
<td>3</td>
<td>History of economic thought, including classical, neoclassical, and post-Keynesian economics.</td>
</tr>
<tr>
<td>6E 2 Principles of Economics</td>
<td>3</td>
<td>Historical economics, economic history, and the development of economic thought.</td>
</tr>
<tr>
<td>6E 3 Principles of Economics</td>
<td>3</td>
<td>Historical and contemporary economic theory, including welfare economics and behavioral economics.</td>
</tr>
<tr>
<td>6E 4 Principles of Economics</td>
<td>3</td>
<td>Historical and contemporary economic theory, including economic growth, development, and international trade.</td>
</tr>
<tr>
<td>6E 5 Principles of Economics</td>
<td>3</td>
<td>Development of economic thought, including classical, neoclassical, and post-Keynesian economics.</td>
</tr>
<tr>
<td>6E 6 Principles of Economics</td>
<td>3</td>
<td>Development of economic thought, including historical and contemporary economic theory.</td>
</tr>
</tbody>
</table>

Economics Development

<table>
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<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 7 Economics of Productivity and Policy</td>
<td>3</td>
<td>Analysis of economic productivity and its impact on policy formulation.</td>
</tr>
<tr>
<td>6E 8 Economics of Productivity and Policy</td>
<td>3</td>
<td>Advanced study of economic productivity and its impact on policy formulation.</td>
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</table>

Economics Policy

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 9 Principles of Economic Policy</td>
<td>3</td>
<td>Analysis of economic policies and their impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 10 Principles of Economic Policy</td>
<td>3</td>
<td>Advanced study of economic policies and their impact on economic outcomes.</td>
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</tbody>
</table>

Economics Environment

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 11 Environmental Economics I</td>
<td>3</td>
<td>Introduction to environmental economics, including environmental policy and market failure.</td>
</tr>
<tr>
<td>6E 12 Environmental Economics II</td>
<td>3</td>
<td>Advanced study of environmental economics, including environmental policy and market failure.</td>
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</table>

Economics Employment

<table>
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<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 13 Labor Economics I</td>
<td>3</td>
<td>Analysis of labor markets and labor policies, including labor market discrimination and labor market institutions.</td>
</tr>
<tr>
<td>6E 14 Labor Economics II</td>
<td>3</td>
<td>Advanced study of labor markets and labor policies, including labor market discrimination and labor market institutions.</td>
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</table>

Economics Finance

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<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 15 Finance I</td>
<td>3</td>
<td>Introduction to financial markets and investment, including asset pricing and corporate finance.</td>
</tr>
<tr>
<td>6E 16 Finance II</td>
<td>3</td>
<td>Advanced study of financial markets and investment, including asset pricing and corporate finance.</td>
</tr>
</tbody>
</table>

Economics Government

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<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>6E 17 Economics of Government I</td>
<td>3</td>
<td>Analysis of government economic policies and their impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 18 Economics of Government II</td>
<td>3</td>
<td>Advanced study of government economic policies and their impact on economic outcomes.</td>
</tr>
</tbody>
</table>

Economics Industry

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>6E 19 Industry Economics I</td>
<td>3</td>
<td>Analysis of industrial organization and the impact of competition on economic outcomes.</td>
</tr>
<tr>
<td>6E 20 Industry Economics II</td>
<td>3</td>
<td>Advanced study of industrial organization and the impact of competition on economic outcomes.</td>
</tr>
</tbody>
</table>

Economics International Trade

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>6E 21 International Trade I</td>
<td>3</td>
<td>Analysis of international trade and its impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 22 International Trade II</td>
<td>3</td>
<td>Advanced study of international trade and its impact on economic outcomes.</td>
</tr>
</tbody>
</table>

Economics Money and Banking

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6E 23 Money and Banking I</td>
<td>3</td>
<td>Analysis of money and banking systems and their impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 24 Money and Banking II</td>
<td>3</td>
<td>Advanced study of money and banking systems and their impact on economic outcomes.</td>
</tr>
</tbody>
</table>

Economics Natural Resources and the Environment

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>6E 25 Natural Resources and the Environment I</td>
<td>3</td>
<td>Analysis of natural resources and the environment and their impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 26 Natural Resources and the Environment II</td>
<td>3</td>
<td>Advanced study of natural resources and the environment and their impact on economic outcomes.</td>
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</tbody>
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Economics Regulation

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<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6E 27 Regulation in Economics I</td>
<td>3</td>
<td>Analysis of economic regulation and its impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 28 Regulation in Economics II</td>
<td>3</td>
<td>Advanced study of economic regulation and its impact on economic outcomes.</td>
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Economics Urban Economics

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6E 29 Urban Economics I</td>
<td>3</td>
<td>Analysis of urban economics and its impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 30 Urban Economics II</td>
<td>3</td>
<td>Advanced study of urban economics and its impact on economic outcomes.</td>
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Economics Welfare Economics

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<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6E 31 Welfare Economics I</td>
<td>3</td>
<td>Analysis of welfare economics and its impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 32 Welfare Economics II</td>
<td>3</td>
<td>Advanced study of welfare economics and its impact on economic outcomes.</td>
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Economics History

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<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6E 33 History of Economics I</td>
<td>3</td>
<td>Analysis of the history of economics and its impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 34 History of Economics II</td>
<td>3</td>
<td>Advanced study of the history of economics and its impact on economic outcomes.</td>
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Economics Philosophy

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<tr>
<th>Course Title</th>
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<tbody>
<tr>
<td>6E 35 Philosophy of Economics I</td>
<td>3</td>
<td>Analysis of the philosophy of economics and its impact on economic outcomes.</td>
</tr>
<tr>
<td>6E 36 Philosophy of Economics II</td>
<td>3</td>
<td>Advanced study of the philosophy of economics and its impact on economic outcomes.</td>
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</tbody>
</table>
6E-181 History of Economic Thought 3 s.h.

6E-181 National Income Analysis 3 s.h.

6E-181 Advanced International Economics 3 s.h.

6E-181 Advanced International Economics 3 s.h.

6E-181 Advanced International Economics 3 s.h.

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6E-181 International Economics 3 s.h.
demographic change, transportation systems, oil shock and oil price change, scale of ocean carbon, climate on interannual to interdecadal timescales. Prerequisite: permission of instructor.

6C:295 History, Theory, and Methodology 3.50
This course is divided into two sections. The first section concentrates on normalizing debates in economics; history of thought and social theories of economic growth. The second section includes the principles of welfare economics, international trade, economic history, and consumption of natural resources. Prerequisite: consent of instructor.

6C:296 History of Economic Thought I 3.50
Economic thought and social and political background influencing development of economic thought, creation of both positive and normative economics. National and regional economic histories, political economy, social background, and classical economics. Prerequisite: consent of instructor.

6C:297 History of Economic Thought II 3.50
Development of the above ideas, and Keynesian thought. American economic thought and institutions including industrial organization, analysis of world economies. Advanced statistic. Prerequisite: consent of instructor.

6C:299 Industrial Organization 3.50
Theories of the firm, monopolistic competition, oligopoly and searching competition, industrial organization and regulation of major utilities. Prerequisites: 6C:295, 6C:211.

6C:302 Economics of Organization 3.50
Design of institutional arrangements and incentive mechanisms in achieving efficient allocative studies of the role profit motives and their welfare impacts. Prerequisite: 6C:295.

6C:303 Economics of Law and Regulation 3.50
Analysis of government regulation of economic activities, and policy problems involving legal systems. Prerequisite: 6C:202.

6C:304 Economic Analysis for Lawyers 2.50
Economics and legal analysis of areas where law affects economic behavior, including aspects of competition law, public finance, and tax policy. Prerequisites: consent of instructor. Tol Par

6C:306 Transportation & Regulation 2.50
Principles for designing and controlling common carrier industries. Prerequisites: 6C:295 and 6C:306.

6C:308 Economics of the Government Sector 3.50
Network of taxes in relation to labor market characteristics, trade, and capital market. Analysis of distribution, income, and government and social welfare, as well as international tax policies. Prerequisite: 6C:295.

6C:310 Economics of the Government Sector II 3.50
Expenditure policies, fiscal rules, revenue mobilization, public sector financial management, and tax behavior. Prerequisite: 6C:295.

6C:330 Federal Tax Policy 2.50
Effects of taxation on consumer expenditure, income and wealth distribution, and economic stability; valuation of proposals for changes in federal tax system. Prerequisites: 6C:295 and 6C:306.

6C:334 State and Local Government Finance 3.50
Economic functions of government; property and problem analysis of multifaceted, efficient government; statistical government finance in statistics; description, evaluation, and policy for change.

6C:358 Methods of Regional Analysis: Economic and Institutional 2.50
Methods of regional science including input output and econometric models, regional government, statistical economic analysis, regional location systems, regional economic history, and spatial econometric models. Analysis of comparative advantage, transportation networks, and regional input-output models. Prerequisites: intermediate knowledge of statistics and consent of instructor. Same as 6C:290. 102-060.

6C:359 Location Theory 2.50
Economic location of the firm, transportation cost and location urban spatial structure and simplified theory. Prerequisite: consent of instructor. Same as 6C:290. 102-060.

6C:390 Regional Development: Theory and Policy 2.50
An exploration of regional growth and development, factors affecting regional economic development, and the role of government in stimulating regional economic growth and spatial analysis and evaluation of regional policy. Prerequisite: consent of instructor. Same as 6C:290. 102-060.

6C:393 Regional Development: Mathematical Models 2.50
Models of regional growth and development, accounting for interactions, regional input-output models, and regional economic trends and their causes. Analysis, extrapolations, and evaluation of regional policy. Prerequisite: consent of instructor. Same as 6C:290. 102-060.

6C:396 The New Economic History 2.50
6C:398 Readings in Economics 2.50
Prerequisite: consent of instructor.

6C:403 Econometrics Seminar 2.50
Prerequisite: approval of instructor.

6C:405 Economic Development Seminar 2.50
6C:407 Workshop in Applied Econometrics and Statistics 2.50
6C:410 Advanced Graduate Seminars in Economics 2.50
6C:412 Workshop in Applied Econometrics and Statistics 2.50

Advanced Graduate Seminars 2.50
6C:501 Readings in Advanced Economic Theory 2.50
6C:511 Seminar in Economic Theory 2.50
6C:513 Seminar in Applied Econometrics and Statistics 2.50
6C:515 Workshop in Microeconomics 2.50
6C:517 Seminar in Monetary Economics 2.50
6C:519 Workshop in Macroeconomics 2.50

6C:521 Workshop in Money and Monetary Economics 2.50
Prerequisite: consent of instructor.

6C:525 Workshop in Macroeconomics 2.50
Prerequisite: consent of instructor.

6C:527 Seminar in Monetary Economics 2.50
Prerequisite: consent of instructor.

6C:528 Seminar in Economic Theory 2.50
Prerequisite: consent of instructor.

6C:529 Seminar in Applied Econometrics and Statistics 2.50
Prerequisite: consent of instructor.

6C:530 Readings in Advanced Economic Theory 2.50

Advanced Graduate Seminars 2.50

Advanced Graduate Seminars 2.50

Advanced Graduate Seminars 2.50

Advanced Graduate Seminars 2.50
Primarily for Graduates

G201 Directed Readings in Finance

G216 Research Report

G217 Experiential Course

G218 Advanced Corporate Finance

G219 Alternative Finance Theory

G220 International Business

G221 International Finance

G222 Topics in Business

G223 Field Studies in Business Administration

Industry and Human Resources

Industry Relations and Human Resources

Department chair: Richard C. Pegramter
Faculty: professors Beniamin F. Kovaloski, Peter G. Schofield, Anthony V. Scarlato; associate professors Daniel G. Segaloff, Thomas P. DiGioia, Henry P. Reapman, Paul R. Vinetti; Richard C. Pegramter, Thomas III. Skura, Stephen E. Thompson, and Richard C. Pegramter; assistant professors: Vivian S. Yang, Cheryl L. Mares, Michael K. Montel, and P. M. Wolb
Students majoring in industrial relations take courses in study and have experiences dealing with labor relations and human resources management. The program is designed to give the student a thorough background in these areas of study as well as an understanding of the application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are intended to be both theoretical and pragmatic aspects of the field.

Graduates of the program are prepared for a variety of line, staff, and professional positions in business, government, non-profit institutions, and education. The areas of work for which graduates are qualified include personnel management, wage and salary administration, staff benefits, selection and recruitment, performance appraisal, industrial training, manpower issues, collective bargaining, contract administration, grievance handling, dispute resolution, and such labor legislation areas as equal employment opportunity, social insurance, equal pay, age discrimination, and labor relations law.

**Undergraduate Program**

Requirements for the Bachelor of Business Administration degree with a major in industrial relations and human resources management are as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6L150</td>
<td>150T Labor Law</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L156</td>
<td>Personnel Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L158</td>
<td>Management</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Total: 9 h.

Students select courses in the specialized area on the basis of their individual interests and with the advice and consent of their advisers.

**Master of Arts**

A Master of Arts degree with a major in industrial relations and human resources management is available as a specialized program for students who seek a professional degree in the field. The degree is designed to provide concentrated graduate study, labor relations and personnel management. Students complete from 35 to 41 semester hours of course work selected with consent of an adviser. The 35 to 41 hours are inclusive of all common body of business knowledge requirements mandated by the American Assembly of Colleges of Business. For general requirements 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**

**Primary for Upper Division Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6L109</td>
<td>Cooperative Education Internship</td>
<td>0.5 h.</td>
</tr>
<tr>
<td>6L110</td>
<td>Introduction to Law</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L111</td>
<td>Administrative Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L112</td>
<td>Basic topics in personnel management, organizational structures, decision making, leadership, the labor-management relationship, and administration of organizations.</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

**Undergraduate Program**

The requirements for the Bachelor of Business Administration degree, with a major in industrial relations and human resources management, are as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6L150</td>
<td>150T Labor Law</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L156</td>
<td>Personnel Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L158</td>
<td>Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>6L158</td>
<td>Management</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Total: 9 h.

Students select courses in the specialized area on the basis of their individual interests and with the advice and consent of their advisers.

**Master of Arts**

A Master of Arts degree with a major in industrial relations and human resources management is available as a specialized program for students who seek a professional degree in the field. The degree is designed to provide concentrated graduate study, labor relations and personnel management. Students complete from 35 to 41 semester hours of course work selected with consent of an adviser. The 35 to 41 hours are inclusive of all common body of business knowledge requirements mandated by the American Assembly of Colleges of Business. For general requirements 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.
Management Sciences

Cher: Wayne J. Boe
Faculty: professors Calvin E. Rut, Allston L. Barry (Stanley Peterson, Jr., James A. H. Oppenheim, Charles R. Klopman, Gary L. Nale)
associate professors Eleanor W. Bunch, Warren J. Stee, Donald E. Archer, and David E. Carlin, Gary G. C. Fellers, Johannes Leibfried, Gary A. Wolckhardt
Assistant professors Philip A. Z. Eng, John E. Lin, and Kenneth E. Neef

Management sciences major programs start in a variety of educational experiences that develop their students' knowledge about complex managerial decision-making systems. Skills in applying this knowledge are acquired by developing quantitative models, using computer technology, creating data base systems, and examining the behavioral attributes of work organizations. Each degree track offers a variety of career options open to departments majoring.

Management sciences majors are preparing for a variety of career opportunities in both manufacturing and service organizations. Typical starting positions include computer programmers, systems analysts, sales representatives with computer companies, and management trainees. Management sciences majors are well prepared for positions in operations management as well as many other more traditional positions.

Three tracks of study are available to the management sciences major: administrative studies, management information systems, and operations management. Course requirements are listed below for each track.

Administrative Studies Track
6:71 Statistical Analysis
6:101 Individual Behavior in Organizations
6:102 Group Behavior in Organizations
6:106 Design and Management of Organizations
6:176 Managerial Decision Models
6:180 Management Information Systems
6:183 Management Information Processing and Decision Behavior
One of the following courses:
6:100 Microeconomics
6:116 Selected Problems in Administrative Science
6:133 Managerial Economics
6:179 Management Science Topics
6:184 Production Planning and Control

Management Information Systems Track
6:71 Statistical Analysis
6:101 Individual Behavior in Organizations
6:103 Design and Management of Organizations
6:175 Managerial Decision Models
6:180 Management Information Systems
6:181 Systems Design for Operations Management
One computer science programming course (SEC16-17 recommended).

Operations Management Track
6:71 Statistical Analysis
6:94 Production Management (may be taken in place of 6:135)
6:101 Individual Behavior in Organizations
6:103 Design and Management of Organizations
6:175 Managerial Decision Models
6:180 Management Information Systems
6:181 Systems Design for Operations Management
6:184 Production Planning and Control

Master of Arts

The Master of Arts program in management sciences is designed for the student who seeks an opportunity for socialization or a research experience. The general requirements are specified in the description of the Master of Arts in business administration. See "Interdepartmental Graduate Programs" at the front of this section of the Catalog. Students must consult with a faculty advisor and plan a program of study for the master's degree.
Marketing

Marketing

Marketing

Undergraduate Program

The Department of Marketing offers courses that help undergraduate students understand the social as well as the economic role of marketing.

Several decades ago the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today, the study of marketing includes principles that are applicable to the services purchased, are as relevant in the marketing of the arts, athletics, and social causes as they are in the marketing of goods and services. A major in marketing includes study in the behavioral sciences, consumer behavior, statistical analysis, and computer methods.

Students graduating with majors in marketing may find opportunities for employment in jobs such as market analyst, merchandise manager, buyer, community action agent, purchasing agents, advertising salesmen, or sales representatives. In a variety of organizations, both profit and nonprofit.

The requirements for the Bachelor of Business Administration degree with a major in marketing are as follows.

5M:71 Statistical Analysis
3 s.h.
5M:134 Marketing Research
3 s.h.
5M:135 Consumer Behavior
3 s.h.
5M:137 Advertising Theory and Planning
3 s.h.
5M:138 Marketing Communications
3 s.h.
5M:139 Sales Management
3 s.h.
5M:147 Marketing Management
3 s.h.

Graduate Programs

See "Interdepartmental Graduate Programs" for the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

5M:300 Cooperative Education Internship
3 s.h.
5M:310 Industrial Marketing
3 s.h.
5M:311 Introduction to Structure of Marketing - Advertising Environment of an organization and its strategies with selected market mixes and strategies. Emphasis on understanding advertising as a managerial function. Prerequisites: 5M:1 and 5M:2; one may be a prerequisite.

For Undergraduates and Graduates

5M:131 Directed Readings in Marketing
3 s.h.
5M:134 Marketing Research
3 s.h.
5M:135 Consumer Behavior
3 s.h.
5M:137 Advertising Theory and Planning
3 s.h.
5M:138 Sales Management
3 s.h.
5M:147 Marketing Management
3 s.h.
Primarily for Graduates

EM 231 Decision-Making in Marketing
3.5 cr.
Individually guided meetings in selected topics in marketing. Prerequisite: consent of instructor.

EM 250 Contemporary Topics in Marketing
3.0 cr.
Special topics in contemporary issues at the graduate level. Students may register for credit for more than one section of the course. Prerequisite: consent of instructor.

EM 251 Marketing Management—M.B.A.
3.0 cr.
Internal and external environment of marketing decisions; behavior science applied to consumer behavior, design and micro-marketing segmentation, marketing goals, plans, and strategies. Prerequisite: consent of instructor.

EM 254 Marketing Research Methods
3.0 cr.
Methods of design and analysis of marketing research studies, including survey and laboratory and field experimentation. Precision of market research, including information collection techniques, sampling, sources of data, instrument construction, and statistical analysis. Prerequisite: consent of instructor.

EM 255 Buyer Behavior
3.0 cr.
Study of behavior of consumers and industrial buyers. Examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

EM 258 Product Management
3.0 cr.
The strategic importance of marketing planning. Examination of the role of the marketing manager in the planning and implementing of actions. Time management and planning product lines. Prerequisites: consent of instructor.

EM 256 Marketing Communications
3.0 cr.
Examination of marketing communications as dialogue between producers and consumers and how promotional mix variables, emphasis on advertising, sales promotion, and personal selling affect public attitudes. Prerequisites: consent of instructor.

EM 259 Methodology in Marketing
3.0 cr.
Brief overview of multivariate methods and concentration on those methods as they relate to marketing problems. Regression analysis, factor analysis, discriminant analysis, chi-square analysis, and market research. Prerequisite: consent of instructor.

EM 262 Market Research
3.0 cr.
Examination of theoretical and operational models in marketing with emphasis on research services, logical flow and quantitative models which attempt to solve marketing management problems. Analysis of study design, data collection methods and market research information. Prerequisite: consent of instructor.

EM 263 Psychological Scaling for Marketing Applications
3.0 cr.
Surveys a number of psychophysical scaling techniques which have applications in consumer research in marketing. Topics include definition and properties of scale types, unidimensional and multidimensional scaling models, nominal scales and discriminant analysis; some emphasis on data collection methods and market research information. Prerequisite: MATH 21. Prerequisite: consent of instructor.

EM 266 Seminar in Marketing
3.0 cr.
Examination of current marketing literature and current situations with faculty and students. Prerequisite: consent of instructor.

EM 270 Research in Marketing
3.0 cr.
Individually guided research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

EM 272 Thesis in Marketing
3.0 cr.
Prerequisite: consent of instructor.

EM 299 Field Studies in Marketing
3.0 cr.
Substantive knowledge regarding various aspects of marketing system to aid problems in engineering firms. Individuals or teams of students conduct field studies under faculty supervision. Prerequisite: consent of instructor.
The College of Dentistry is both administratively and physically an integral part of the University. It draws upon and contributes to the University’s diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Center, whose teaching, research, and service activities have earned international recognition.

**Doctor of Dental Surgery**

The basic educational program leading to the degree Doctor of Dental Surgery (D.D.S.) consists of approximately three years of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units:

**Basic Sciences**
- Gross anatomy; biochemistry; histology; physiology; general pathology; oral pathology; pharmacology; microbiology.

**Restorative Dental Sciences**
- Gross, microscopic, and radiographic dental anatomy; dental materials; endodontics; operative dentistry; fixed partial prosthesis; removable prosthesis.

**Oral Medicine**
- Preventive dentistry; oral diagnosis; dental radiology; oral pathology; anesthesiology and pain control; oral surgery; periodontics. In addition, there are selected mini-courses in the basic sciences program which are correlated with the basic clinical sciences.

**Community Dentistry**
- Ethics; epidemiology; nutrition; preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence; geriatrics.

**Pediatric Dentistry**
- Facial growth and development; pedodontics and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-management situations during the first year.

The second-year program includes further activities in the basic and clinical sciences.

Third-year dental students rotate through a series of "corkshorks" which expose them to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which simulates conditions in private dental practice.

Fourth-year students also are exposed to various extramural health programs that include state and University Hospitals and Clinics and the State Department of Health. In addition, there are preceptorships in which fourth-year dental students assist in selected dental offices throughout Iowa. The preceptorships expose students 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 appointed by the dean from the basic preclinical and clinical sciences, and from the 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 desires special consideration on problems concerning promotion or graduation, he or she may appeal this decision to the dean. All appeals shall be heard by an ad hoc committee appointed by the dean.

The ad hoc committee is charged to investigate new information that has not been available before, and for some reason has not been discussed as fully as the student feels it should have been, and to determine whether this new information (or important new insights that may have gained) could have influenced the Collegiate Academic and Professional Performance Committee's decision. The recommendation of the appeals committee is submitted to the dean for final action.
State Board of Dental Licensure Examination

The states of Kansas, Colorado, Missouri, Iowa, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota have joined in the formation of the Central Regional Dental Testing Service to replace dental examinations previously given by the states individually. These examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from the American Dental Association. Successful completion of requirements of the Central Regional Dental Testing Service will be accepted by the member states for a five-year period in lieu of their individual state's examination requirements.

Facilities

The Dental Science Building, a major unit in an expanded health center, enables the college to accelerate its research activities, and facilitates the development of interdisciplinary communication in health center teaching, research, and patient-care activities. The health center includes the colleges of Medicine, Nursing, and Pharmacy, the Rower Science Building; University Hospital and Clinics, and a Health Sciences Library. The Health Sciences Library houses all of the University's special health science periodicals, a total of 184,560 volumes, including the College of Dentistry's own collection of 18,000 volumes on dentistry and allied sciences subjects, and the more than 320 dental journals the college currently receives. The library received a total of 2,600 journals from the combined health professions.

The Dental Science Building consists of two connected four-story wings located on either side of a main body. The south wing is devoted to clinical teaching, with various dissection and lecture rooms, study rooms, faculty workrooms, support laboratories, clinical research space, offices, and an automated learning center. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration area, an audiovisual production center, and the programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through their local chapter. The American Dental Association. In addition, there are local chapters of The American Association of Women Dentists and the American Society of Dentistry for Children. Students who rank in the upper 12 percent of the graduating class are eligible for election to Omicron-Kappa Upsilon, the national honorary society of dental society. Two national dental professional organizations, Delta Sigma Delta and the Omicron, have chapter houses at both schools, and both have sponsored social activities.

Expenses

The College of Dentistry maintains a Supply-Instrument Management System (S.I.M.S.) that provides the student with most of the instruments and supplies necessary throughout dental training. The instrument usage fee for the program leading to the D.D.S. degree is payable in installments over the first three years of the program. A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakdown fee must also be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Assistance

Financial assistance for dental students is needed on an individual basis. Assistance is established by comparison of the College Scholarship Service Financial Aid Form which indicates an evaluation of parents' income and assets. Students are eligible for Federal Family Education Loans, National Direct Student Loans, state grants, and educational assistance from employers. Interest on these loans accrues at a comparatively low rate and the loans are repayable over a specified period of time after completion of the course of study.

Short-term loans are available to assist students in emergency situations. These are available through the Financial Aid Coordinator at the College of Dentistry. See the "Financial Aid" section of the Catalog or inquire at the Office of Student Financial Aid for update information regarding financial assistance available to dental students.

Admission

Each applicant must submit to the American Association of Dental Schools Application Service a completed application form. The forms are available from the University Office of Admissions. Applications are accepted beginning June 1 of the year prior to the year for which application is made. The end of the application cycle is November 30. Applications missing this deadline will be processed for the following year; however, admitted applicants will be notified starting December 1. Applicants who are accepted are urged to apply for financial aid as soon as possible and not delay, for example, until after the Dental Admission Test is taken. Early application is essential in the applicant's best interest.

The prospective dental student is encouraged to embark on an educational program that will lead to a standard bachelor's degree. This will allow the student to consider a combined program which 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).

The College of Dentistry has an agreement with the state of Arkansas whereby supplemental payment toward tuition is paid for accepted Arkansas residents. The result of this payment is that students would pay the equivalent of in-state resident tuition.

Preadmit Studies

The basic academic requirement for admission to the College of Dentistry is the completion of 120 semester hours of academic study at an accredited college, in exception, circumstances, candidates with fewer than 120 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 College of Dentistry may consider outstanding students during their first two years of undergraduate studies for early admission to a future class. A similar provision allows admitted students to delay enrollment under specific circumstances which enhance their career goals.

The preadmit program of study should include:

Rhetoric
Satisfactory accomplishment in English composition, rhetoric, and speech communication with the academic equivalency of a bachelor's degree at the college of the applicant.

Physics
One year (equivalent to eight semester hours) which one-fourth must be laboratory work.

Chemistry
Two years (equivalent to 16 semester hours), of which one year (equivalent to eight semester hours) must be in organic chemistry, and of which one-fourth must be laboratory work.

Biology
One year (equivalent to eight semester hours) which must include appropriate laboratory work; one year can be received in general biology and botany (not both alone).

Electives

Select course work in the social sciences, philosophy, psychology, sociology, history, foreign languages, and mathematics to provide a well-rounded educational background.
The dental admissions committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects.

Combined Liberal Arts-Dentistry Course

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective hours requirements toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University makes it possible for the student who enters the College of Dentistry to obtain the admission degree from the College of Liberal Arts upon successful completion of the freshman year in dentistry. To take advantage of this plan, the student must fulfill all specific requirements for the bachelor's degree, including the requirements for a major in some department or area of concentration. The successful completion of the last 30 hours in the College of Liberal Arts at The University of Iowa preceding enrollment in the College of Dentistry satisfies the College of Liberal Arts residence requirement.

Grade-Point Requirement

The applicant should have a cumulative grade-point average of 3.5 in addition to the cumulative grade-point average, the admissions committee gives special consideration to the quality of the applicant's course work in the preclinical sciences.

Interviews

Personal interviews are required of all applicants at the College of Dentistry. After the initial evaluation of application materials, interviews will be arranged for those who are in competitive positions for potential admission.

Required Dental Admission Test

All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Association. Tests are given two times annually, and The University of Iowa is a testing center. Applicants must take the test no later than October in order to be admitted the following year. The applicant may take the test application forms from the University 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

An accepted applicant is required to submit a deposit within 30 days after notification of favorable action on his or her application until April 15. Applicants admitted after April 15 must submit the deposit within two weeks after their notification of admission. This deposit is not refundable but is credited toward the final tuition payment. A applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From the applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study of dentistry. The committee considers applicants' academicaverage, science average, the scores on the required Dental Admission Test, and several other factors.

Graduate and Postgraduate Study

Programs of study leading to the Master of Science degree are offered by the College of Dentistry's departments of Dental Hygiene, Fixed Prosthodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Pedodontics, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics.

Admission to any of the graduate programs requires completion of all requirements for admission to the Graduate College, possession of the Doctor of Dental Surgery degree or its equivalent (except for Dental Hygiene), and departmental approval.

Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as for graduate programs. A certificate is awarded upon satisfactory completion of the postgraduate program.

Basic Sciences in the Dental Curriculum

The following science courses are offered by departments in colleges other than Dentistry, and are a required part of the dental curriculum:

60:101 Human Gross Anatomy for Dental Students 6 s.h.
60:112 General Histology for Dental Students 4 s.h.
60:114 Oral Microscopic Anatomy and Embryology 1 s.h.
61:182 Dental Microbiology 4 s.h.
60:203 Introduction to Human Pharmacology 4 s.h.
71:151 Pharmacology for Health Sciences: Dental 5 s.h.

72:152 Mammalian Physiology 4 s.h.
99:161 Biochemistry for Dental Students 4 s.h.

Nondepartmental Courses

110:162 Thematic Credits Accepted 4 s.h.
110:163 First-Year Combining Session 3 s.h.
110:164 Introduction to Geriatric Dentistry 2 s.h.
Included as credit toward required hours from courses in social, psychological, and cultural aspects, reviews disease processes in the elderly that affect dental treatment as well as normal aging and pathogenetic changes in the elderly patient that affect treatment and patient management.

110:165 Second-Year Combining Session 3 s.h.
110:166 Biochemistry Options 3 s.h.
Selection from a range of elective mini-courses to emphasize the student's areas of interest in dental practice.

110:167 Dental Therapeutics 1 s.h.
Clinical experience with drugs for sedation, analgesia, antispasmodics, antibiotics, antacids, and gastro-intestinal preparations.

110:169 Third-Year Combining Session 4 s.h.
110:170 Pregrad Advanced 4 s.h.
Opportunities for foreign dental studies are negotiated with the faculties of dental colleges abroad.

110:171 Fourth-Year Clinic 12 s.h.
110:172 Continuation Learning Days Topics 6 s.h.
Required fourth-year course covering special topics in practice management, conducted in a continuing education environment.

110:174 Advanced Clinical Comprehensive Dentistry 5 s.h.
Comprehensive clinical management of dental emergencies and advanced operative dentistry.

110:176 Introduction to Electronic Priorite Monographs 2 s.h.
Lecture and laboratory work dealing with fundamentals of electron optics, electron beam, wavelength, and energy density diagrams, qualitative and quantitative measurement, and sample preparation techniques.

110:181 Final Year Seminar 1 s.h.
To provide graduate students with an overview of advanced training opportunities available for specialists within the college. Offered fall semester of every year.

Clinical Management Concepts

Faculty: professor Thomas W. Garthwaite associate professor: Herman Luger assistant professor: Michael Prewatt
clinical instructor: Robert Stebbins, associate in nutrition: Joanne Zaffar

112:107 Introductory Seminar 2 s.h.
Weekly lecture and small group meetings and student activities arranged to provide educational experiences in patient relations and treatment coordination utilizing computerized patient record system.

112:131 Clinical Management Emergency 1 s.h.
Clinical evaluation, diagnosis, and treatment of patients with emergencies related to implementation of patients dental condition for referral to appropriate department for definitive treatment.

112:132 Advanced Topics in Quality Assurance 2 s.h.
Teaching the clinician, through case presentations and discussion, how to arrive at a practical treatment plan for a given patient, how to organize systems for quality assurance to fit any clinic's needs, and how to use the systems to improve quality of care to the patient's advantage.

112:133 Advanced Topics in Quality Assurance 1 s.h.
Clinical communication allows the clinician to practice what they have learned in their previous dental practice in relation to quality assurance criteria, discussions of ethical and moral issues in relation to dental practice.

112:134 Advanced Skills 1 s.h.
Clinical opportunity to assess the entire concept of...
Dental Hygiene

Department Chair: Patricia Klein
Faculty:borah Turley, Katherine Atkins, Patricia Prince, Jennifer Griffen, Kay Swanson, Nancy Stuckey
Staff: assistant professor Catherine Davis, Wendy Netzer
Lecturer: professor Barbra Hal, Jon Ravos, Jangif Miller
Catherine Lifset, B.S., M.S.

Bachelor of Science

Qualified by education and licensure, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing patient services for the prevention and control of dental disease. The Bachelor of Science degree program in dental hygiene comprises two years of general education followed by two years of specialization study. Students who wish to graduate in December rather than May may enroll in an extended summer semester between the junior and senior years.

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 licensing 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, they enroll in 60:2 Human Microscopic Anatomy, 71:130 intermediate Pharmacology, 82:61 Operative Dentistry Laboratory, 86:69 Oral Pathology, 86:69 Oral Pathology for Dental Hygienists, 87:61 Anatomy, 87:61 Anatomy, and 88:51 Dental Anatomy.

In addition, juniors learn the basic theory and clinical skills required for partial hygiene practice in 89:61 Dental Hygiene Course, and 89:61 Practical Dental Hygiene Course II, which integrate concepts in dental anatomy and the theory and practice of clinical dental hygiene.

During the senior year, students advance after clinical skills in 89:85 Clinical Dental Hygiene. In 92:80 Advanced Periodontics for Dental Hygienists, each student is assigned to work with a graduate student in periodontics performing procedures on adults who have active periodontal disease. This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.


Senior students also are enrolled in 88:97 Practicum, Community Dental Hygiene; 88:88 Seminar, Community Dental Health; 79:117 Designing and Developing Instructional Materials; 222:101 Biostatistics, and 172:115 Introduction to Geriatric Dentistry.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and epidemiology are integrated into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Students discuss broad community health issues related to the provision of dental health care. This course enables students to apply knowledge of human behavior, basic principles of communication and marketing, and educational and research techniques that design, implementation, and evaluation of health care and educational programs.

Admission Requirements

High School Preparation

Although there are no specific high school course requirements, college preparation courses are recommended. These courses should provide four years of English, at least two years of some foreign language, two years of high school algebra and one year of high school geometry. In addition, one year each of biology and chemistry.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion of 62 semester hours of college course work. Students must satisfactorily meet all general admission requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

- Five semester hours (eight for transfer students) in general education biology—31:1 Introductory Animal Biology.
- Three semester hours of inorganic chemistry—41:1 General Chemistry I.
- Three semester hours of organic chemistry, including biochemistry—41:2 General Chemistry II.
- Four semester hours of microbiology—51:1 Microbiology.
- Three semester hours of nutrition—74:1 Food, Nutrition, and You.
- Three semester hours of psychology—31:1 Elementary Human Anatomy.
- Three semester hours of psychology—74:100 and 74:140 Human Psychology.

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted to the professional program of study must complete basic certification in cardio-pulmonary resuscitation technique (CPR) prior to entrance. Completion of a two-year associate degree program in dental hygiene does not provide for appropriate background for transfer into the baccalaureate program at KU.

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 fall semester of their sophomore year. Freshmen students must submit both the application to the dental hygiene program. All applicants are reviewed by the Dental hygiene Admission Committee after submitting their 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. In addition, graduates are prepared to contribute toward the advancement of new knowledge in dental hygiene. Therefore, graduate program goals place emphasis on the acquisition of advanced scientific knowledge and research methodology.

In addition, students must satisfactorily meet all general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

- Five semester hours (eight for transfer students) in general education biology—31:2 Introductory Animal Biology.
- Three semester hours of inorganic chemistry—41:1 General Chemistry I.
Graduate Admission Requirements

Applicants for admission are subject to the normal rules of the Graduate College. Departmental requirements for the Graduate Record Examination (GRE) Aptitude Test and a 2.0 minimum undergraduate cumulative grade-point average. The undergraduate education of the applicant must include coursework equivalent to that in the undergraduate dental hygiene major at The University of Iowa.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Calvin Hall. These materials must be received before the candidate's application can be processed. Application 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 clinical options in dental hygiene or enrich their educational background in a dental hygiene-relevant 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 may wish to direct a project of their choosing. Which, in turn, will give new perspectives to the research areas.

Facilities

University of Iowa dental hygiene majors receive their professional preparation in a state-of-the-art dental hygiene education and research building. This building is part of the University of Iowa Health Science Center complex, one of the nation's outstanding health science teaching, research, and patient care facilities.

Financial Aid

In addition to financial assistance available to University students in general, there are a limited number of loans 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

Detailed student human anatomy, physiology, and functions, includes dental anatomy, embryonic development, histology, anatomy of primary and permanent dentitions.

Endodontics

Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student. Preclinical endodontics is taught during the sophomore year and includes both didactic and laboratory courses. In clinical endodontics, the student studies both normal and pathological conditions.
Fixed Prosthodontics

Department Head: Kenneth A. Turner
Faculty: Edward R. Aird, Carl W. Sarns, James A. Tanner
required: Richard O. Jordan, Brian M. Leake, Robert Park, Ann Robinson
Degree offered: M.D. or M.S.

Predoctoral Program

The department participates in the D.O. program for dental students at all levels. Predoctoral courses at the first and second levels prepare the student with a background in materials and techniques used in fixed prosthodontic treatment. Third-year students participate in a concentrated time program of patient treatment in the specialty. The department provides a consultation service to students in the fourth-year curricular levels.

Postdoctoral Program

The department offers Master of Science and certificate programs. The primary purpose of the Master of Science program in fixed prosthodontics is to prepare dental students for careers in fixed prosthodontics education and/or 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 seminar courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biostatistics or elementary statistical inferences in medicine, and a research 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 upon the student’s research and/or thesis topic.

Certificate Program

The department offers a certificate program which 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 correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.O. or D.M.D. degree or its equivalent.

Courses

114:085 Prosthodontic Materials Laboratory 2 h.
114:091 Dental Materials 1 h.
114:122 Dental Materials: Physical and mechanical properties of dental materials. 1 h.
114:120 Dental Materials 1 h.
114:121 Dental Materials 1 h.
114:122 Amalgam 1 h.
114:123 Dental Materials 1 h.
114:124 Fixed Prosthodontic Technique Lecture 1 h.
114:125 Fixed Prosthodontic Technique Laboratory 1 h.
114:126 Fixed Prosthodontic Technique Laboratory 1 h.
114:127 Fixed Prosthodontic Technique Laboratory 1 h.
114:128 Fixed Prosthodontic Technique Laboratory 1 h.
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114:184 Fixed Prosthodontic Technique Laboratory 1 h.
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114:186 Fixed Prosthodontic Technique Laboratory 1 h.
114:187 Fixed Prosthodontic Technique Laboratory 1 h.
Requirements for the Master of Science degree include satisfactory completion of 68 semester hours of specified graduate-level courses; preparation of an acceptable thesis based on original research; and formal defense of the thesis and examination of the candidate by an examining committee. The student should plan to finish his or her graduate financial support for the research and thesis. An applicant for this program must be a graduate of a recognized school of dentistry and must comply with the requirements for admission to the Graduate College of the University. An interview with the applicant may be requested.

Courses

D.O. Program

6210 Operative Dentistry Laboratory for Hygienists 2 s.h.
Study of the application of dental materials and methods to the restorative procedures of operative dentistry.

6215 Dental Anatomy Lecture 3 s.h.
Lecture and seminars concerning dental terminology, development, embryology, and function of human primary and permanent dentition.

6217 Dental Anatomy Laboratory 2 s.h.
Detailed study of human teeth, mouth, and maxillary sinuses. Techniques of tooth preparation, crown, and bridge construction.

6212 Operative Dentistry I 4 s.h.
Lectures and seminars concerning concepts, terminology, and procedures of operative dentistry. Introduction to diagnosis of cavity preparation, morphologic and relationship of restorative materials, and principles of form and function of restorations.

6215 Operative Dentistry II Laboratory and Clinic 2 s.h.
Study and application of procedures involved in preparing and forming tooth surface and restoring compromised teeth. Introduction to the use of restorative materials other than amalgam and porcelain, with emphasis on set-up, trimming, and finishing procedures.

6215 Operative Dentistry II Clinic 2 s.h.
Clinical training in operative dentistry on patients in clinical practice.

6216 Operative Dentistry III Clinic 2 s.h.
Clinical training in operative dentistry on patients in clinical practice.

615 Operative Dentistry II Seminar 1 s.h.

Primary Dentistry

Discipline Studies

6230 Operative Dentistry Seminar I 1 s.h.
Lecture and discussion of basic concepts and procedures of operative dentistry.

6230 Operative Dentistry Seminar II 1 s.h.
Discussion and laboratory experience on the use of metal and inlay and on composite resin and porcelain.

6230 Operative Dentistry Seminar III 1 s.h.
Clinical seminar and discussion of case studies, emphasizing problems related to occlusion, anterior guidance, and posterior stability.

Predoctoral Program

The department's primary objectives is to provide instruction to dental students and other health-profession students in the etiology, natural history and diagnosis of disease affecting the mouth and to prepare the student for the practical aspects of the oral cavity; instruction includes the clinical, laboratory, radiographic, and microscopic features of these diseases and their management. Instruction is provided in the physical examination of patients to identify systemic diseases and their influence on dental therapy, and the influence of dental treatment on systemic diseases.

Research Program

6230 Operative Dentistry Research I 3 s.h.
Topics selected, committee selection, and literature review for research project, begin research protocol.

6230 Operative Dentistry Research II 2 s.h.
Complete protocol, begin research.

6225 Operative Dentistry Research III 2 s.h.
Complete research, gather anesthesia data.

6230 Operative Dentistry Research IV 2 s.h.
Begin writing thesis.

6230 Trends Preparing for Operative Dentistry 4 s.h.
Complete thesis, defense status, and oral examination.

Clinical Studies

6225 Operative Dentistry Advanced Clinic I 4 s.h.
Student study of oral and periodontal problems, diagnosis, treatment and management of oral conditions.

6225 Operative Dentistry Advanced Clinic II 4 s.h.
Treatment of oral cases in the operative clinic. Preparation, set-up, and concentration on oral restorative procedures.

6225 Operative Dentistry Advanced Clinic III 4 s.h.
Treatment of oral cases in the operative clinic. Selection and concentration on oral restorative procedures.

6225 Operative Dentistry Advanced Clinic IV 4 s.h.
Treatment of oral cases in the operative clinic. Selection and concentration on oral restorative procedures.

6225 Operative Dentistry Advanced Clinic V 4 s.h.
Treatment of oral cases in the operative clinic. Selection and concentration on oral restorative procedures.

6225 Operative Dentistry Advanced Clinic VI 4 s.h.
Clinical demonstration of oral and periodontal problems.

Oral Pathology and Diagnosis

Hest: George L. Lipy

6481 Oral Pathology and Diagnosis 4 s.h.

Master of Science Program

Advanced instruction is available for graduate-level students in health sciences and related fields in preparation for specialty practice or careers in teaching and research in the areas of oral pathology, occupational health, oral medicine, and dental radiology. Candidates for the Master of Science degree are expected to develop substantial expertise for research into mechanisms of oral disease, and should anticipate that considerable effort will be devoted to the completion of an assigned research project and the thesis based on it.

Minimum requirements for completion of this program include 60 semester hours of graduate work and a thesis. The required courses are:

6008 Problems 2 s.h.
11212 Statistical Methods in the Biomedical Sciences 3 s.h.
65201 General Pathology for Medical Students 5 s.h.
65221 Systemic Pathology for Medical Students 7 s.h.
65230 Research in Oral Pathology and Diagnosis 5 s.h.
65240 Histopathology 2 s.h.
65250 Advanced Oral Pathology 3 s.h.
92216 Dental Sciences Research Methodology 4 s.h.
89159 Basic Oral Biology 4 s.h.
89180 Topics in Oral Pathology 1 s.h.
89200 Oral Pathology and Diagnosis Literature Review 2 s.h.

The tools for research are determined for each student in consultation with the major advisor. Since most graduates of advanced programs in oral pathology follow careers in teaching or clinical practice, students will participate in predoctoral teaching in the department as part of their education.

Certification Program

The program for certification in oral pathology combines academic studies with extensive laboratory and clinical practice as the period of training under staff supervision. It requires a minimum of 24 months of full-time work for completion. The program is designed to prepare a person for clinical practice of oral pathology and for eligibility for certification by the American Board of Oral Pathology. Qualification for the certificate includes completion of an acceptable amount of training and a passing grade on a comprehensive examination before an examination committee composed of members of the graduate faculty in the Department of Oral Pathology and Diagnosis.
The residency period covers three years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of the skills of surgery, and familiarization with the various aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, in addition to hospital and clinical training, the resident takes advanced course work in such subjects as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology, and reviews such closely-related disciplines as hematology, immunology, anesthesia, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

The resident gains clinical training in anesthesia through an assignment in the Department of Anesthesiology. Prior to advanced training in physical diagnosis, physiology, pharmacology, and pathology, the resident will assume greater clinical significance. Increased responsibility in the operating room will be accorded as the resident becomes familiar with the major procedures of the hospital for the treatment of oral and maxillofacial surgery.

The third-year resident may be assigned responsibility for major oral and maxillofacial surgical cases during rotations in the University Hospitals and Veteran Administration Medical Center. Each third-year resident is assigned a rotational basis as a clinical and educational committee, with responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

Master of Science Degree

Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a three-year course of integrated didactic and clinical training, leading to the completion of a research project and the preparation of a thesis.

Admission

Admission is limited to July 1 of each year for a full three-year program. The application deadline in oral and maxillofacial surgery is September 1 for admission July 1 of the next year. The Graduate Record Examination (GRE) Aptitude Test is required.

The applicant must be a graduate of an accredited college of dentistry and be licensed to practice dentistry in the United States.

Documents required include application for graduate oral and maxillofacial surgery; applicant appraisal form from applicant’s references, transmittal 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 anytime after the application has been completed and the staff wishes to take official action. All applications should be tendered on or before January 1 prior to the July 1 effective date.

The graduate admission office will send an admission form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities

The University Health Center has outstanding basic and clinic-science departments which stimulate and support scholarly research and superior clinical practice. The facilities of the University Hospital and the Veterans Administration Medical Center, and the March of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Hospital Organizations

The organizational structure of University Hospitals and Clinics includes a Hospital Administration Clinic. The Hospital Administration Clinic has divisions of Oral and Maxillofacial Surgery, Family Dentistry, Periodontics, Orthodontics, Periodontics, Cranio-Facial Anomalies, Prosthodontics, Endodontics, and Diagnostics and Oral Pathology. The oral and maxillofacial surgery residency program is a one-year general practice residency. The residents are supervised under the auspices of the Division of Oral and Maxillofacial Surgery and Division of Family Dentistry.

Courses

Predoctoral

87101 Anesthesiology 1.0 h.
87102 Principles and techniques in use of local anesthetics, practical application of local anesthetic techniques for dental hygiene students. 1.0 h.
871039 Anesthesia and Pain Control 1.0 h.
87104 Principles and techniques of complete muscular memory, heat and heart mechanics, cardiovascular and respiratory mechanics, pharmacological and pharmacokinetic role of local anesthetics and techniques in the use of local anesthetics. 1.0 h.
87109 Basic Oral and Maxillofacial Surgery 2.5 h.
87125 Basic Principles of Oral Surgery: principles and contraindications for extractions, extraction of pathological odontogenic and non-odontogenic tissue and minor oral surgery procedures. 1.0 h.
87126 Anesthesia and Oral Surgery 1.5 h.
87127 Theory and application of modern oral surgery: surgical technique, local anesthesia, pharmacology, instrumentation of surgical instruments, evaluation of patient's medical condition, pharmacological techniques of vital discomfort.
87146 Advanced Orthodontic Surgery 2.5 h.
87147 Advanced Oral and Maxillofacial Surgery 2.5 h.
87149 Oral Surgery 3.0 h.
87150 Oral and Maxillofacial Surgery 3.0 h.
87166 Racial Anomalies 1.0 h.
87167 Oral Maxillofacial Surgery 2.5 h.
87173 Oral and Maxillofacial Surgery 3.0 h.
87185 Oral and Maxillofacial Surgery 3.0 h.
87192 Oral and Maxillofacial Surgery 3.0 h.
87193 Oral and Maxillofacial Surgery 3.0 h.
87196 Oral and Maxillofacial Surgery 3.0 h.
Admission
Admission requires the D.D.S. degree, or its equivalent, and satisfactory completion of Graduate College requirements.

The application deadline is October 1 for the fall starting July 1. Applicants will be required to come to the University for interviews with the faculty of the department.

Courses

191:5 Growth and Development: Introduction to the study of growth and development, with emphasis on the craniofacial region.

191:10 Orthodontic Diagnosis and Its Application to Treatment

191:30 Orthodontic Laboratory

191:35 Orthodontic Treatment

191:45 Orthodontic Research

191:50 Orthodontic Clinical Practice

191:100 Orthodontic Clinic

192:00 Orthodontic Theory and Treatment Planning

192:10 Orthodontic Diagnosis and Treatment: Principles of orthodontic diagnosis and treatment planning.

192:20 Orthodontic Research

192:30 Orthodontic Clinical Practice

192:40 Orthodontic Clinical Practice

192:50 Orthodontic Clinical Practice

Pedodontics

Pedodontics

Graduate Program

The purpose of the graduate 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 the learning of 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 appearances are fabricated.

The department supervises a volunteer program of clinical treatment of selected patients.

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191:35 Orthodontic Treatment

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191:50 Orthodontic Clinical Practice

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192:30 Orthodontic Clinical Practice

192:40 Orthodontic Clinical Practice

192:50 Orthodontic Clinical Practice

Pedodontics

Pedodontics

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Courses
90:146 Pediatric Diagnosis and Treatment 3.0 S.
Conceptual growth and development, behavior management, and preventive techniques for pediatric patient.
90:165 Clinical Dentistry 3.0 S.
Comprehensive clinical management of pediatric patients.
90:161 Clinical Seminar in Pedodontics 1.0 S.
Discussions of patient management, case histories, and treatment philosophies.

Primarily for Graduates
90:215 Orthodontic Diagnostic Laboratory 3.0 S.
90:216 Growth and Development; Law and Lab 3.0 S.
91:325 Advanced Elective Anesthesia 3.0 S.
Same as 223; 450, 450A.
90:321 Advanced Didactic Pedodontics 3.0 S.
Lectures and growth and development, behavior management, preventive-nutritional techniques, and diseases of pediatric patient.
90:320 Research in Pedodontics 3.0 S.
Research design and the completion of an original research project is required, with results to be presented in a didactic form.
90:221 Thesis Preparation 1.0 S.
Preparation of original research project and completion of thesis.
90:346 Advanced Clinical Pedodontics 3.0 S.
Comprehensive clinical management in pedodontics patient in areas of preventive orthodontics, operative therapy, endodontics, and motor-oral surgery.
90:341 Pediatric Physical Diagnosis for Dentists 6.0 S.
Principles and techniques for making a physical examination of the child.
90:340 Pediatric Therapy for Dental Practice 3.0 S.
Principles of therapy in various disease conditions.
90:240 General Anesthesia in Children 2.0 S.
A ten-to-eight-week rotation through the anesthesia service of the University Hospitals and Clinics, with emphasis on pedodontic pharmacology and medicine.
90:360 Practice Teaching in Pedodontics 3.0 S.
Observations and practice in current teaching procedures.
90:277 Pediatric Case Review 3.0 S.
Presenting pediatric oral pathology with emphasis on recognition of dysmorphologic syndromes and common oral and periodontal diseases, diagnosis; laboratory, radiographic interpretation, and therapy.
90:273 Paediatric Oral Pathology and Clinical Periodontics 1.5 S.
90:380 General Survey of Pedodontics 3.0 S.

Periodontics
Department Head: Philip A. Larson
Degree offered: M.D.

Predoctoral Program
The Department of Periodontics is concerned with the diagnosis, treatment, and prevention of periodontal disease. Its predoctoral program combines didactic, laboratory, and clinical experience, with emphasis on applying the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal disease.

Master of Science Program
The Master of Science program is designed primarily to provide training for teaching, research, and specialization in pedodontics. The program meets all eligibility requirements for American Board of Pedodontist certification. The program requires:
- Satisfactory completion of a minimum of at least 72 semester hours of required and elective course work;
- Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and three 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, proposals for interdisciplinary doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics will assist in the development of individual doctoral programs designed to train candidates for careers in teaching and research in periododontal diseases. Such programs may be interdisciplinary with anatomy, biochemistry, microbiology, pharmacology, or physiology.

Certification
Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, the certification program provides a sound foundation in the clinical practice of periodontics.
Completion of the program requires 24 calendar months of full-time study, with:
- Satisfactory completion of a minimum of 60 semester hours of required and elective courses;
- Satisfactory completion of a comprehensive written and oral examination; and
- An acceptable literature review or research paper.

Opportunities are provided for experience in clinical and basic research.

Research Opportunities
Research carried out by faculty and graduate students in pedodontics has been selected regularly for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of cariology, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Quality of Faculty
Faculty members hold numerous national and international 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 members are Diplomates of the American Board of Pedodontics.

Financial Aid
Sizable support is available to qualified students through grants from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission
Apply to the Graduate College.
null Removable Prosthodontics

null Seminar and clinical experiences: mouth examination, diagnosis, prognosis, and treatment of patients requiring complete and removable partial dentures.

04.25 Complete Denture Seminar I 1.5 h.
Review of current research in principles, practices, and concepts of complete denture construction.

04.25 Removable Partial Denture Seminar I 1.5 h.
Review of current research in principles, practices, and concepts of removable partial denture construction.

04.27 Complete Denture Seminar II 1.5 h.
Review of past research in principles, practices, and concepts of complete denture construction.

04.28 Removable Partial Denture Seminar II 1.5 h.
Review of past research in principles, practices, and concepts of removable partial denture construction.

04.29 Research: Removable Prosthodontics
A. Literature review, protocol preparation, and data collection for selected research project.

04.29 Thesis Preparation: Removable Prosthodontics
A. Preparation and defense of thesis from research project.

04.30 Advanced Clinical Removable Prosthodontics
A. Treatment of patients requiring complete and partial dentures.

04.30 Technique Methods: Removable Prosthodontics
A. Assigned projects involving technical methods in construction of complete and removable partial dentures.

04.31 Case Study: Removable Prosthodontics
A. Guided and classroom teaching experience assigned by instructor.

04.31 Journal Club
A. Review of current literature in prosthodontics.

04.31 Library Assignment: Removable Prosthodontics
A. Discussion of selected readings that are contained classics in removable prosthodontics literature.
The nation's first university-level professional chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907, and the College of Education, structured in the basic pattern which governs it today, was founded in 1913. The growth of the college has corresponded to the growth of the University.

Faculty members have been leaders in a variety of educational fields. Particularly noteworthy are the early developments in educational testing and measurement which helped lay the foundation for the present-day education testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.

The college has seven divisions: Counselor Education; Early Childhood and Elementary Education; Educational Administration; Foundations, Postsecondary and Continuing Education; Psychological and Quantitative Foundations; Secondary Education; and Special Education.

The University is accredited by the National Council for Accreditation of Teacher Education (NCATE) for the preparation of elementary and secondary teachers and other professional school personnel, with the doctorate the highest degree approved. Teacher preparation programs are also reviewed and approved by the Iowa Department of Public Instruction.

**Teacher Education Programs**

The programs at The University of Iowa offer seven Teacher Education Programs, each of which leads to a state of teaching certification.

Five of the programs involve earning a College of Education major:

- Early Childhood Education
- Elementary Education
- Health Occupations Education
- Elementary Mathematics Education
- Secondary Mental Retardation

The other two programs are teaching endorsement programs, one in the teaching of handicapped children at the preschool level, the other in the teaching of subject areas at the secondary level. To receive an endorsement to teach at the secondary level, a student must complete an appropriate major in one of the departments of the College of Liberal Arts and Sciences and complete course work required by the College of Education. To receive an endorsement to teach the preschools of handicapped, a student must complete a major in early childhood education.

All students admitted in a Teacher Education Program (TEP) must complete College of Liberal Arts general education requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies.

**Undergraduate Admission to Elementary and Secondary Teacher Education Programs**

Undergraduate students 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 to The University of Iowa. Students already enrolled at the University who decide to enter a Teacher Education Program (TEP) must declare the appropriate College of Education major or secondary education teaching area in the College of Liberal Arts Advising Office, 116 Schaeffer Hall. If requirements for formal admission have been met, students may submit at the same time an Application for Admission to the Teacher Education Program. Students who have decided on a Teacher Education Program but have not yet satisfied formal admission requirements should make their declaration in the College of Liberal Arts Advising Office so that a College of Education adviser may be assigned. Students may submit the formal TEP application only after program admission requirements have been satisfied.

**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.
- Attained sophomore standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses.
- Achieved a 2.30 grade-point average on all college course work and course work completed at The University of Iowa.
- Submitted an Application for Admission to a Teacher Education Program.

**Additional Requirements for Admission to Special Education**

Students seeking a major in the secondary mentally retarded program must also earn a major in elementary education. Students seeking a major in the secondary-level mentally retarded program do not need to complete a second major. For each of these...
EDUCATION

programs students must meet the general admission requirements of the undergraduate Teacher Education Program.
Enrollment in each of the special education programs is limited to a fixed number of students. Applicants who meet the minimal general requirements for a Teacher Education Program are 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 rank ordered 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 in Special Education for a listing of ways to gain such opportunities in the Iowa City area.
Twenty students will be admitted each year to the elementary mental retardation program. Fifteen students will be admitted each year to the secondary mental retardation program. Twenty students will be admitted each year to the preschool handicapped program. The admission process will take place as soon as spring transcripts become available to the Division of Special Education. Students will be notified by mail (usually by July) regarding admission to the Teacher Education Program. Late applications will be considered on a first-come, first-served basis only when program quotas are not filled.
Students transferring from the University of Iowa from special education programs at other colleges or universities may be admitted to second year courses only if space permits.
Graduate-Level Admission to Teacher Education Programs
Students who have completed a baccalaureate degree may be admitted to a Teacher Education Program in one of two ways:
They may apply to the Graduate College with their objective stated as "teaching," or in another secondary teaching area 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. Have a cumulative grade-point average of not less than 2.00 on undergraduate work; 3.00 for M.A.T. objective. Admission to a specific certification program (e.g., elementary education, special education, or secondary (English)).
They may apply to the College of Liberal Arts as a postbaccalaureate student with senior standing. Students selecting this route should not apply as special students. They must apply to the appropriate Teacher Education Program following the undergraduate admission procedures and must meet the general requirements stated in the undergraduate admission section.
Student Teaching
The final phase of the teacher education program is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teacher's experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with prior approval in advance.
Admission to the senior year student teaching semester is by separate application. This application must be submitted by March 15 of the academic year preceding the one in which the student teaching is to be completed to the Office of Student Services, 3015 Lindquist Center. Opportunities for overseas and urban student teaching experiences are available. Requirements for admission to student teaching vary by program and academic status. Students should consult with their advisors regarding specific requirements for the several program areas.
Waivers
Students who have completed practicum-type experiences or courses which 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. Regular settings for urban student teaching include the CUTE Program (Cooperating 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 available include: Ireland, England, Scotland, Wales, and Australia. In most locations, students are assisted with housing by the on-site coordinator. Students electing this program must meet the regular requirements for student teaching.
State Requirements
Certification to teach in most states, including Iowa, is based on proof of graduation from an approved teacher education program at an accredited college or university, and passage of a State Board examination. The requirements of the American government or American history. Either of the general education (social sciences) courses for certification to teach in the American Political System satisfies this requirement. All students seeking an Iowa teaching certificate must complete a course in human relations. This requirement can be met by completing 279:170 Human Relations for the Classroom Teacher.
Special Requirements
Students admitted to TEP for the fall semester 1984 and thereafter must complete 279:92 Introduction to Microcomputing 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 or a taxpayer, or as a future member of a local board of education. Or, a given student may feel that such knowledge will be of general interest in the current or future fields of education, science education, human relations, and educational psychology. Descriptions of these minors are available in the 279:170 Student Services, 3105 Lindquist Center.
Programs
Graduate study in the College of Education is guided by the general regulations of the Graduate College. With certain additional requirements stipulated by the faculty of the College of Education. The graduate education register in the Graduate College is the official degree program for the College of Education and is based on concentrations within the College of Education. The graduate education register in the Graduate College and the specific degree of the College of Education.
Master of Arts
The College of Education offers a Master of Arts degree on both a thesis and nonthesis basis in each of two options. The nonthesis M.A. program usually provides required specialized course work that is found in the M.A. thesis program. The nonthesis M.A. program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral level are urged to select the M.A. thesis program which offers more experience in research procedures. Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or division during the early part of their doctoral program.

Master of Science
Thesis and nonthesis programs are available for students desiring a concentration in science. The degree outcome and the use of the programs are similar to those above for the Master of Arts degree.

Master of Arts in Teaching
The M.A.T. program is a 36 semester hour minimum nonthesis program designed for academically superior liberal arts graduates who included few or no professional education courses in their undergraduate programs. The program leads to a master's degree and in some cases a superior aggressor in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 3.00 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 minimum of 12 semester hours of graduate work in education is also required and must be taken to satisfy certification requirements.

Specialist in Education
This degree is granted upon the completion of a prescribed two-year, postbaccalaureate program designed for students who are interested in specializing 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 thesis or extensive paper. Other requirements and regulations applicable to the Ed.S. are the same as for the master's degree, except that a minimum of 15 semester hours of resident work on campus are required in one 15-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 the 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 superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

Professional Improvement
Students may be admitted to a professional improvement program for purposes of taking limited course work rather than a degree program. This program provides for minimal advisement and is appropriate for persons seeking salary credits, who are undecided about career plans, or whose academic programs are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to this program rather than as degree candidates due to incomplete information, unclear degree objectives and the like, in order to permit registration in the University.

Bulletin
Prospective graduate students should write to the Office of Graduate Education or for its bulletin, Advanced Studies 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 ongoing 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 conveniently located location approximately 26,000 elementary and secondary textbooks, reference books, courses of study, bibliographies, pamphlets, and non-print media such as microforms, games, records, and microcomputer software. The laboratory also houses a 27,000-volume youth collection.

The Audiovisual Production Laboratory houses a variety of instructional equipment and materials. Its facilities provide opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition, laboratory staff members provide consultative service to students and faculty of the College of Education for production of color slides, overhead transparencies and other materials related to instructional development.

The Video Production Laboratory offers a wide variety of audio and video services. These services range from equipment checkout and micro-teaching facilities use to the design and production of high quality 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 consultation and group assistance with job search skills and employment tactics, access to job vacancies, establishment of a placement file, and the opportunity to interview with school recruiters on campus. An Information Center with resources covering career information, directories of schools, colleges and agencies, and community and state data is available for students planning careers in education and related areas.

The Main Library and the Psychology Library provide books, periodicals, reference books, films, ERIC microfiche, tests, and a reserved book room for students and faculty.

The Iowa Testing Program's staff develops standardized educational tests, such as the Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides an educational testing program, and system training, and provides 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 15 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels through the use of professional programs, variation by evaluation teams and the enforcement of policies and standards for continued membership. The University of Iowa houses and supports the office of State Director of the Iowa NCA State Committee.

The Office of Research and Development provides supportive services for faculty research, development, and grant efforts and coordinates such efforts with the University Division of Sponsored Programs. It initiated and maintains continuing contacts with State agencies, and private foundations for the purpose of identifying potential research
opportunities. It disseminates information to college faculty concerning research opportunities and research being conducted.

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University's Psychiatric Hospital. Children attending this school are residential patients in the child psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services. University Counseling Services are facilities available to students in counseling psychology for research and practicum purposes.

University Hospital School is a University-affiliated faculty and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Teacher Certification Services

Though 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 and institutions accredited by the National Council for Accreditation of Teacher Education.

The College of Education Office of Student Services, N310 Lindquist Center, provides Iowa application forms and certification information to all students competing 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 that facility and indicate their interests, their academic and professional qualifications, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and 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 application is in review for review by those responsible for selecting the assistantship(s) for the student's program. Appointments are normally, 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 offered by the College of Education are eligible to apply; provided they are United States or Canadian citizens. The assistantships are for the academic year, renewable for a limited number of times, and, at the present, are stipends similar to those for other assistantships. Holders are assigned to work under the direction of a faculty member in a research capacity, and must be enrolled for not less than or more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), letters of recommendation, and scores on the Graduate Record Examination (GRE) Aptitude Test. The application must be filed on a special form which may be obtained from the director of the Iowa Testing Program, 334 Lindquist Center, College of Education, Education deadline is March 1.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University and elsewhere may be obtained from the Office of Student Financial Aid.

College of Education Student Loan Fund

The College of Education Student Loan Fund has been established by combining four existing loan programs: Associate Dean Emeritus L.A. Van Dyke, Professors Emeriti John Haefner and John McKadam; the late Dr. Peter Maguire, a University of Iowa alumnus, and the late Donald Savoy, a University of Iowa alumnus and former elementary principal in Iowa City, Iowa. 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, as, for example, unforeseen emergencies. The borrower must be a senior or post-bachelor 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 course work at the University of Iowa; have a strong academic record, and demonstrate potential for success in the field of education. For further information and application forms, contact the Director of College Development, Educational Placement Office, N320 Lindquist Center.

College of Education Awards

Awards are presented to outstanding graduate student and undergraduate student in Education at the spring semester faculty meeting of the college. The awards include:

- John Leonard Davies Memorial Award To an outstanding graduate student majoring in education whose specialization is adult and continuing education;
- Harvey H. Davis Award To an outstanding student in educational administration or higher education, particularly a student interested in the financing of education;
- Howard R. Jones Achievement Award To an outstanding graduate student who has made a noteworthy 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 McNichol Award To the outstanding candidate for an advanced degree in educational administration;
- Leonard A. Miller Memorial Award To an outstanding first-year M.A. student majoring in rehabilitation counseling;
- Paul C. Packer Award To the outstanding candidate for the Master's Degree in Education;
- Pius Maria Twia Award, Senior, M.A. and Ph.D. levels To outstanding students of high scholarship, promise in the professional area of study, teaching or writing, and striking personal qualities;
- James and Coretta Stroud Fellowship For Doctoral Study in Educational Psychology, Measurement or Statistics To an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering dissertation phases of study;
- Janet R. Zober Memorial Award To an outstanding student preparing to teach the physical handicapped (including the hearing impaired).

Faculty

Ninety-eight percent of the members of the faculty with academic rank hold endowed doctorates in their teaching fields, and the majority have had teaching or administrative experience in the public schools.
A major strength of the college is its close working relationship with the College of Liberal Arts. With few exceptions, professors on the College of Education faculty 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, and all are as energized in education, and hold academic rank both in their academic departments and in education.

Intervisitourial Courses

72.009 Cooperative Education Internship

This 1-6 credit course for students majoring in Cooperative Education, supports the internship sequence described in this course during work at an approved intern placement. Students earn credit for the cooperative education internship.

72.122 Facilitating Career Development in Schools

This 3 or 6 credit course provides introductory and specialized courses in career development. Topics include personnel relations, career counseling, human resource development, and student learning and development. The course is designed to help candidates in this field.

72.124 Topics in Vocational Work in the Schools

This 1-2 credit course is designed to acquaint students with the basics of vocational work in the schools. It covers career decision-making programs, including vocational, goals, methods, and evaluation procedures.

72.120 Teaching Work with the Blind

This 1-2 credit course is designed to acquaint students with the basics of teaching work with the blind. It covers the basics of teaching work with the blind, including methods and techniques.

72.150 Human Relations in the Classroom

This 1-2 credit course is designed to acquaint students with the basics of human relations in the classroom. It covers the basics of human relations, including methods and techniques.

72.155 Workshop in Education

This 1-5 credit course is designed to acquaint students with the basics of workshop in education. It covers the basics of workshop in education, including methods and techniques.

72.166 Teaching American History

This 1-2 credit course is designed to acquaint students with the basics of teaching American history. It covers the basics of teaching American history, including methods and techniques.

72.170 Social Studies in the Community

This 1-2 credit course is designed to acquaint students with the basics of social studies in the community. It covers the basics of social studies in the community, including methods and techniques.

72.175 Expository of American History

This 2-3 credit course is designed to acquaint students with the basics of American history. It covers the basics of American history, including methods and techniques.

72.177 History and Equity Issues

This 1-2 credit course is designed to acquaint students with the basics of history and equity issues. It covers the basics of history and equity issues, including methods and techniques.

72.185 Seminar in the Arts

This 1-2 credit course is designed to acquaint students with the basics of seminar in the arts. It covers the basics of seminar in the arts, including methods and techniques.

72.187 Seminar in Assessment in the Arts

This 1-2 credit course is designed to acquaint students with the basics of seminar in assessment in the arts. It covers the basics of seminar in assessment in the arts, including methods and techniques.

72.201 Counselor Research Topics

This 1-6 credit course provides a research seminar in counselor education. It covers the basics of research in counselor education, including methods and techniques.

Highly successful experience in the field.

Candidates must also evidence an appropriate level of emotional balance, personality, and interpersonal skills.

Students admitted on a conditional basis will usually be required to earn a 3.0 grade-point average to be admitted to regular status.

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 such positions as assistant dean or dean of students in small colleges or as director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education, educational degree programs, and, with experience, as college teachers.

Admission requires completion of a master's degree in counseling, personnel work, or a closely related area, and a 3.0 grade-point average. Successful experience in college student personnel work or equivalent experience is desirable.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor educator, researcher, assistant dean or dean of students, or as director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education, and external degree programs.

The M.A. degree or its equivalent is not necessary for admission to the Ph.D. program. It may be taken while the student is completing the comprehensive examination, the student must, after an M.A. thesis or equivalent as evidence of research. Students who complete the requirements for admission are not taken or satisfied as evidence of training. Students who complete the requirements for admission are not taken or satisfied as evidence of training. Students who complete the requirements for admission are not taken or satisfied as evidence of training. Students who complete the requirements for admission are not taken or satisfied as evidence of training. Students who complete the requirements for admission are not taken or satisfied as evidence of training. Students who complete the requirements for admission are not taken or satisfied as evidence of training.

Rehabilitation Counseling

The M.A. program (accredited by the Council on Rehabilitation Education) provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, private rehabilitation agencies, mental hospitals, prisons, and in other public and private
agencies concerned with the rehabilitation of the handicapped. Admission requirements are the same as the minimum requirements of the Graduate College. In addition, a personal interview is highly desirable. Applications are reviewed March 1 to May 1 for fall admissions only.

**Doctor of Philosophy**
The Ph.D. program provides preparation for leadership in college and university rehabilitation counselor education, research and service programs in universities and state agencies, and programs in public institutions and the private sector. Admission requirements for the Ph.D. program are the same as the minimum requirements of the Graduate College, plus an M.A. thesis or equivalent. Applicants who have recently graduated from an M.A. program in rehabilitation counseling, and who have not had at least one year of full-time work experience in rehabilitation counseling, will not be considered. Such work experience is viewed as highly desirable, and will enhance the application. Applications are reviewed March 1 to May 1 for fall admissions.

**Counseling and Human Development**

**Master of Arts**
The M.A. program provides preparation for counseling in a variety of settings. Minimum requirements for regular admission to the M.A. program are a 3.0 grade-point average over the last 60 undergraduate semester hours or a 3.3 grade-point average over 12 semester hours of graduate work or 2.75 undergraduate grade-point average with a GRE Aptitude Test score of at least 1500. Additional admission is sometimes granted.

**Educational Specialist**
The purpose of the Ed.S. program is to enable counselors and counselor supervisors to increase their competence beyond the master’s level. Minimum admission requirements are a master’s degree or equivalent in counseling and experience as a counselor and a 3.0 minimum grade-point average on all graduate study.

**Doctor of Philosophy**
The Ph.D. program provides preparation for teaching, leadership, and research positions in counseling. Admission requirements are a 3.25 minimum grade-point average and satisfactory performance on the GRE Aptitude Test; and a master’s degree or its equivalent in a counseling area.

**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 community counseling settings. The emphasis is on individual and family counseling. Admission requirements are the same as the minimum requirements of the Graduate College; in addition, a personal interview and some experience in the field are highly desirable.

**Facilities**
A wide variety of counselor education practical experiences are available in a large number of settings in neighboring community agencies, schools, and colleges, as well as in many agencies throughout the University.

**Financial Aid**
Depending on federal funding, graduate fellowshipships 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 the division. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

**Courses For Undergraduates and Graduates**

**Counseling and Guidance**

**7518 Making a Vocation-Educational Choice**
2 hrs. Directed toward those students who are uncertain about their educational and vocational goals. Special emphasis given to the vocational decision-making process, self-evaluation, and exploration of the world of work.

**7526 Student Development for Residence Hall**
2 hrs. Provides Residence Assistants with the appropriate residential background and practical skills for performing their assigned tasks. Content includes student development theory, helping skills, group leadership, and program development.

**7528 Introduction to Peer Counseling**
2 hrs. Introduction and explanation of helping skills. Counseling techniques (teaching, response, referral, self-disclosure) and a brief introduction to other human service fields.

**7528 Process of Change and the Counselor**
3 hrs. Laboratory course focusing upon strategies other than problem-solving techniques to help change group behavior. Emphasis on the interpersonal context of instruct.

**7528 Human Sexuality**
1.5 hrs. Exploration of physiological and psychological aspects of human sexuality. Same as 46 112, 17 117, 56 112, 56 113.

**7530 The Culturally Diverse in Educational Settings**
3 hrs. Problem-solving among culturally different students in educational settings. Emphasis on research impact on development and role of learner in education. (Same as 74 110, 74 111.)

**7537 Education of the Gifted**
Same as 78 137.

**7538 Sex Roles Involving Women in Socialization**
3 hrs. Considers the part adolescent girls play in socialization of same sex arena of school; emphasis on personal and social development of females in the role of boy, and discussion of alternative strategies and approaches for change. Same as 71 155.

**7541 Introduction to Psychopathological Services**
3 hrs. Same as 80 156.

**7542 Psychological Aspects of Women’s and Men’s Roles**
3 hrs. Emphasis on the psychological aspects of women’s and men’s roles in society, sex role socialization in a variety of settings, strategies for change.

**7562 Introduction to Marriage and Family Counseling and Psychotherapy**
3 hrs. Emphasis on the counseling of the family therapy movement and issues related to functional and dysfunctional family systems. Emphasis on theoretical models of family therapy and specific techniques.

**7563 Microcounseling**
3 hrs. Micro-level training, questioning, paraphrasing, and redirecting, self-control, voice inflection and fluency.

**7566 Workshop in Counselor Education**
2 hrs. Designed to provide topics for the continuing education of counselors and related professionals.

**7575 The Gift Cult**
3 hrs. Consideration of attitudes, values, language, articles, and media specific to non-dominant group, personality correlates of drug use and abuse.

**7578 Counseling Group Process**
3 hrs. Small group procedures used for personal and organizational development in educational settings; demonstration of theoretical issues and research findings; inclusion of participation in group with a non-dominant group. Prerequisite: consent of instructor.

**7580 Individual Instruction in Counseling Education—**
Undergraduate level. Prerequisite: consent of instructor.

**7581 Introduction to Rehabilitation Counseling**
3 hrs. Introduction to counseling theory and techniques for persons who are entering professions which require them to engage in helping relationships with clients. Includes experiential methods utilized in counseling. Children and adolescent populations.

**7582 School Counseling Procedures**
3 hrs. Techniques for administering and interpreting student appraisal data in areas of personnel and secondary school counseling. Emphasis on the statistical test devices, case study procedures.

**7585 Introduction to Group Counseling**
3 hrs. Survey of theory, techniques, and practice in group counseling, including major historical influences, various theoretical approaches, and related skills.

**7590 Pre-Practicum in Counseling**
1 hr. Structured field experiences, to be taken before the practicum in counseling designed to acquaint students with counseling field work and provide an orientation. Open only to those in school counselor education.

**7593 Assessment of Special Populations**
1 hr. Orientation to the process and practice of assessing retarded pupils for rehabilitation plan development and decision-making.

**7594 Group Leadership in Human Services**
3 hrs. Survey of group counseling techniques and strategies used in a variety of human services settings. (Same as 75 114.)

**7595 Counseling of Children and Parents**
3 hrs. Survey of methods, procedures, and research related to counseling techniques and strategies. Prerequisite: consent of instructor. (Same as 7A 150.)

**7615 Technical Writing**
3 hrs. Special course focusing upon areas of professional writing and the report writing function. The course is open only to students in the counseling education program.
of study or the equivalent in one foreign language. In all other respects the B.A. and B.B.E. degree requirements are identical.

Required by both programs are the following foundations courses, which should be completed by the end of the sophomore year:

- 97:7 Fundamentals of Science 4 s.h.
- 234:10 Theory of Arithmetic 3 s.h.
- 7P:75 Educational Psychology and Measurement 3 s.h.
- 7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
- 7W:91 Audio-Videoreal Instruction 1 s.h.
- 7W:91 Introduction to Microcomputing for Teachers 1 s.h.

A course in American history or American politics 3-4 s.h.

Also required, usually completed during the junior or senior year, is the following:

- 7X:170 Human Relations for the Classroom Teacher 3 s.h.

**Undergraduate Programs in Early Childhood Education**

Early childhood teachers serve in a variety of organizations, including pre-kindergartens and kindergartens in the public school system. Head Start and other publicly funded pre-kindergarten classes or day care centers, and privately funded early childhood centers serving children from infancy to first grade are also within the realm of early childhood education.

Preparation for early childhood teaching includes the study of child development, parent-child relationships, the organization and administration of child care centers in addition to the knowledge of curriculum and methodology for young children. The program requires a minimum of four practice 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 Department of Education for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergarten and elementary level should elect the early childhood education major as described in a subsequent section of the Catalog and its early childhood education area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 10 (K-8) and 53. Students interested in dual certification as teachers of pre-kindergarten and kindergarten and pre-school handicapped children should refer to the special education section of the Catalog. Separate standards leading to this program must be made to the Department of Special Education. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 53 and 93.

In addition to the foundations courses listed above, the following must be completed before student teaching:

- 17:10 Growth and Development of the Young Child 3 s.h.
- 7P:106 Child Development 3 s.h.
- 17:124 Nutrition with Children 3 s.h.
- 7E:126 Methods and Materials: Music for the Classroom Teacher 3 s.h.
- 7E:122 Methods and Materials: Art for the Classroom Teacher 3 s.h.
- 7E:123 Literature for Children I 3 s.h.
- 7E:127 Literature for Children II 3 s.h.
- 7E:127 Early Childhood Education I 3 s.h.
- 7E:92 Pre-Kindergarten Practicum, Pre-Kindergarten 1 s.h.
- 7E:93 Pre-Kindergarten Practicum, Kindergarten and Early Elementary 1 s.h.

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow: 17:114 Parent-Child Relationships 3 s.h.

- 7U:138 The Culturally Different in Educational Settings 3 s.h.
- 7E:185 Methods: Multicultural-Bilingual Education 3 s.h.
- 7E:185 Multicultural Concepts and Educational Systems 3 s.h.
- 7E:185 Development of Administration of Child Care Centers 3 s.h.

Students must take a minimum of three courses (nine 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 Early Childhood and Elementary Division office. These courses may be taken pass/fail as 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 adviser 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.

**Undergraduate Programs in Elementary Education**

Elementary teachers serve in a variety of school settings, including self-contained rooms in which the teacher assumes responsibility for most of the curricular areas, departmental positions in which their responsibilities are concentrated in one or two subject areas, and team teaching assignments where two or more teachers assume shared responsibilities 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 process, of the selection and structure of curricular materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. Study of the program is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is assigned specifically to prepare students to teach kindergarten through fifth grade. Special sequences are also available for students seeking the pre-kindergarten/kindergarten endorsement and for those seeking approval for teaching in middle schools or junior high schools. Students interested in certification for elementary teaching and approval for special education should note the requirements for admission to each of these programs: Students interested in this combination must make a separate application to each program and these applications will be considered independently.

The foundations course stated earlier in this section are required. Additional courses are to be completed as follows:

- 7E:180 Methods: Elementary School Language Arts 3 s.h.
- 7E:181 Methods: Elementary School Social Studies 3 s.h.
- 7E:182 Methods: Elementary School Science 2 s.h.
- 7E:154 Elementary School Mathematics 2 s.h.
- 7E:154 Elementary School Reading 3 s.h.

An area of specialization is required in teaching field. The area of specialization offered are elementary art, the arts in early childhood, foreign language, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, mathematics for elementary education, music, elementary reading, elementary physical education, elementary art, music,
elementary social science, special education, and elementary generalist. The student should consult his or her adviser concerning courses which will serve to strengthen preparation for teaching in a subject area and meet the specific requirements for that area. Copies of the requirements for each area of specialization are available in the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-fail if they are offered with the pass-fail option.
Required is a minimum of 15 semester hours of credit in student teaching. Students should apply to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching. Students should consult with their advisers concerning the appropriate registration pattern.

Graduate Programs
Master of Arts in Early Childhood Education
The program is designed to prepare persons to administer and/or 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 instructors. Admission preference will be given to those persons with undergraduate degrees which focused on the education and/or development of young children, including a year of formal education, home economics, social work, or child development.
A core of courses (or their equivalents) is required of all students:
7E:189 Development and Administration of Child Care Centers 3 s.h.
7E:264 Building Foundations for Reading: Pre-primary and Primary 2-3 s.h.
7E:267 Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
7E:268 Supervision and Curriculum Development in the Pre-Kindergarten 3 s.h.
7E:269 Comparative Early Childhood Education 3 s.h.
In addition, a course in each of the following areas is required: parent-child relationships, family development, and child development or psychology. The remainder of the required 42 semester hours (30 with thesis) are elected mutually chosen by the student and the academic adviser.

Master of Arts in Elementary Education
This degree program, which may be taken with thesis (30 semester hours minimum) or without thesis (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, or curriculum consultants. Successful completion of this degree, together with four years of successful teaching experience, qualifies the student for certification as an elementary school supervisor, Iowa Endorsement 12. Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Each candidate must meet at least one course in each of these areas: social foundations, curriculum, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected course work in advanced methodology.
Graduate students who have not completed an undergraduate program in elementary education may be admitted initially as “certification only” candidates.

Master of Arts in Developmental Reading
This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum). The following are required of all candidates:
7E:171 Reading Clinic 2-3 s.h.
7E:172 Teaching Techniques 2-3 s.h.
7E:264 Reading Organizations for Reading: Pre-primary and Primary 2-3 s.h.
7E:265 Supervision of Intermediate Grades-Reading 3 s.h.
7E:364 Methods: High School Reading 2-3 s.h.
7E:364 Seminar: Secondary Reading 3 s.h.
7E:308 Seminar: Research and Current Issues, Reading 3 s.h.
In addition, candidates must complete one or more courses in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the adviser's approval.

Doctor of Philosophy in Elementary Education
This program is designed to prepare master's degree candidates in elementary education to serve as team or departmental science specialists. The program may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum). Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.
The following are required of all candidates:
7E:255 Science Education Issues, History, and Rationale 3 s.h.
7E:256 Science Education: The Nature of Science 3 s.h.
7E:257 Science Education: Teaching, Learning and Curriculum Models 3 s.h.
7E:258 Science Education: Research Models and Conceptual Schemes 3 s.h.
7E:262 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
Science courses to complete the number of semester hours required are selected by the candidate in consultation with the academic adviser.

Master of Science in Elementary Science
The purpose of this program is to prepare graduate and university teaching and research personnel in elementary 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 earned for the dissertation. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the graduate and the division chair.
As a general guideline, each student is expected to have a good general background in all facets of elementary school education and a very strong area of specialization at least one of the commonly selected specializations are elementary school administration, children's literature, early childhood, curriculum, language arts, mathematics, reading, and social studies.
Each doctoral student must also complete a cognate or selected 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 majoring in early childhood and elementary education. Specific assignments are variable. Two possible assignments include: courses in psychology, education, and social studies.

In addition, the student assistant may be required to register for a minimum of 6 semester hours per semester. Graduate students with assistantships may register for a maximum 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 on regular status to the Graduate College and must have been accepted in an advanced program by the College of Education. Interested persons should contact their degree program advisor regarding assistantships available for the division.

Courses

TE 171 Growth and Motor Development

This course is designed to provide students with knowledge of the development of motor skills and techniques in early childhood education. Students are divided into groups based on their age and sex. The focus is on the development of fine and gross motor skills. Students are expected to demonstrate competency in the following areas:

- Observation of children in play situations
- Planning and implementing activities that enhance motor development
- Understanding the relationship between motor development and academic achievement

The course is a 3-credit hour, 3-lecture hour course and is offered in the fall semester of each academic year. The course is designed for beginning and advanced students in early childhood education.

TE 173 Pre-Kindergarten and Early Elementary Education

This course is designed to provide students with an understanding of the development of motor skills and techniques in early childhood education. Students are divided into groups based on their age and sex. The focus is on the development of fine and gross motor skills. Students are expected to demonstrate competency in the following areas:

- Observation of children in play situations
- Planning and implementing activities that enhance motor development
- Understanding the relationship between motor development and academic achievement

The course is a 3-credit hour, 3-lecture hour course and is offered in the fall semester of each academic year. The course is designed for beginning and advanced students in early childhood education.

TE 175 Introduction to Elementary and Early Childhood Education

This course is designed to provide students with an understanding of the development of motor skills and techniques in early childhood education. Students are divided into groups based on their age and sex. The focus is on the development of fine and gross motor skills. Students are expected to demonstrate competency in the following areas:

- Observation of children in play situations
- Planning and implementing activities that enhance motor development
- Understanding the relationship between motor development and academic achievement

The course is a 3-credit hour, 3-lecture hour course and is offered in the fall semester of each academic year. The course is designed for beginning and advanced students in early childhood education.

TE 177 Special Education

This course is designed to provide students with an understanding of the development of motor skills and techniques in early childhood education. Students are divided into groups based on their age and sex. The focus is on the development of fine and gross motor skills. Students are expected to demonstrate competency in the following areas:

- Observation of children in play situations
- Planning and implementing activities that enhance motor development
- Understanding the relationship between motor development and academic achievement

The course is a 3-credit hour, 3-lecture hour course and is offered in the fall semester of each academic year. The course is designed for beginning and advanced students in early childhood education.

TE 179 Physical Education for the Elementary School

This course is designed to provide students with an understanding of the development of motor skills and techniques in early childhood education. Students are divided into groups based on their age and sex. The focus is on the development of fine and gross motor skills. Students are expected to demonstrate competency in the following areas:

- Observation of children in play situations
- Planning and implementing activities that enhance motor development
- Understanding the relationship between motor development and academic achievement

The course is a 3-credit hour, 3-lecture hour course and is offered in the fall semester of each academic year. The course is designed for beginning and advanced students in early childhood education.
16.102 Reading Clinic: Teaching Practice
3-4 hr.
For a follow-up exploration of diagnosis-teaching techniques and reading-curriculum development. Co-requisite: 16.101; permission of instructor. Credit may not be counted toward a degree.

16.107 Teaching/Secondary Mathematics
3-4 hr.
Study of the elementary-school mathematics curriculum, with specific emphasis on understanding young children's levels of understanding and the role of teaching as a part of learning. Prerequisite: 16.101. Credit may not be counted toward a degree.

16.113 Developmental Social Skills
3-4 hr.
For parents wishing to place a greater emphasis on the study skills requisite to successful comprehension of the social skills curriculum.

16.119 Developing Communication Skills
3-4 hr.
Explores the development of communicational skills through role, written, and visual-cinematic modes related to the design and the use of language, the understanding of direct and indirect methods of instruction in arts, ways to develop language across the curriculum and within instructional methods and learning environments and evaluation instruments for communication skills.

16.116 Teaching Elementary School Reading
3-4 hr.
Study of elementary-school reading curriculum with special emphasis on assessing various methodologies to individual pupil needs; includes enrichment activities, classroom diagnosis, comprehension techniques, and other practical classroom activities.

16.117 Workshop: Curriculum Evaluation and Selection
5-6 hr.
For a specific curricular area, choosing or developing criteria for evaluating reading, selecting and organizing materials and activities to suit specific curricular contexts. May be repeated for credit.

16.120 Workshop: Curriculum Development and Implementation
5-6 hr.
For a specific curricular area, determining curricular needs, applying strategies for curricular development, and implementing the strategies and policies to meet curricular needs. May be repeated for credit.

16.127 Reading and Teaching Methodologies
5-6 hr.
For a specific curricular area, reviewing of teaching methodologies, developing strategies, demonstrations, observations, or simulations. Credit may not be counted toward a degree.

16.130 Literature-Based Elementary Teaching
5-6 hr.
For a specific curricular area, reviewing of teaching methodologies, developing strategies, demonstrations, observations, or simulations. Credit may not be counted toward a degree.

16.135 Creative Drama in the Classroom
5-6 hr.
Explores values of creative drama, classroom activities, and growth potential of creative dramatic activities. Includes presentation of teaching strategies, techniques, and techniques in literature-based learning. Includes study of play. May be repeated for credit.

16.140 Designing Curriculum for the Classroom
5-6 hr.
Designed primarily for inservice teachers, explores the design of the classroom in the elementary school and in the special education arena, focusing on the development of instructional strategies, techniques, and techniques in literature-based learning. Includes study of play. May be repeated for credit.

16.152 Superiority of Science in the Elementary School
5-6 hr.
Classroom, subculture, and grade placements of science, organization and function of science, socio-cultural development, interdisciplinary curriculum, via such topics, demonstration techniques, and field trips.

16.154 Workshop: Field Teachers
5-6 hr.
For in-service teachers interested in implementing some of the work presented in this course, with their cooperating teachers, with determination of appropriate content topics vs. various grade levels.

16.158 Curriculum Foundations
3-4 hr.
Elementary and secondary background development in curriculum: introduction, definitions, historical perspective, philosophical, historical, social, cultural, political, economic, informational, and social drivers of development and shaping trends, product oriented. Same as 16.110. Credit may not be counted toward a degree.

16.177 Improving Classroom Teaching Skills
3-4 hr.
Applicability of skills and techniques derived from instruction to interactions between teachers and students. Emphasizes teaching methods, techniques, and evaluation techniques to improve teaching effectiveness.

16.178 Special Education in the Elementary School
3-4 hr.
Student teaching at the elementary level, covering the needs of special education. Prerequisite: 16.110 or permission of instructor. Credit may not be counted toward a degree.

16.191 Supervision Teaching Elementary School Pre-
and Post-Practicum Phase
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.192 Laboratory Practice in Elementary Education
3-4 hr.
Supervised teaching and learning in specific areas, with emphasis on student teaching. Specific areas are identified by section numbers.

16.193 Independent Study
2-3 hr.
Open only to seniors, Prerequisite: consent of instructor. Specific areas are identified by section numbers.

16.205 Multicultural Concepts and Education
3-4 hr.
In-depth examination of educational practices and policies, and educational interventions of their multicultural communities, perspectives on education of the educational institutions which serve them.

16.210 Multicultural Education/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.215 Supervision of Early Childhood Center
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.220 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.225 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.230 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.235 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.240 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.245 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.250 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.255 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.260 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.265 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.270 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.275 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.280 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.285 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.290 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.295 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.300 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.305 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.310 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.315 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.320 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.325 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.330 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.335 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.340 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.345 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.350 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.355 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.360 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.365 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.370 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.375 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.380 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.385 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.390 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.

16.395 Literature-Based Teaching/Elementary School
3-4 hr.
Prerequisite: admission must be made to the College of Education. Credit may not be counted toward a degree.
All Candidates

TO:201 Foundations of School Administration 3 s.h.
TO:203 Computer Applications in Education 2-3 s.h.
TO:261 The Principalship 3 s.h.
TO:298 Legal Aspects of School Personnel 2-3 s.h.
TO:382 Supervision of Instruction 2-3 s.h.

The student must meet the university regulations required of the State of Iowa and specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the advisor to satisfy degree requirements:

Elementary Level

Required
7E:300 Design and Organization of Curriculum 3 s.h.
7D:352 Field Service Projects in Educational Administration (elementary) arr.

Electives
7F:117 Philosophies of Education 2, 3, 5 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.
7D:262 School Organization Patterns 3 s.h.
7E:282 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
7E:297 Curriculum Development in the Kindergarten and Early Childhood 2-3 s.h.
7U:300 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
7D:381 Analysis and Appraisal of Curriculums 2-3 s.h.
7E:290 Supervision of Elementary School Language Arts 3 s.h.
7E:291 Supervision of Elementary School Social Studies 3 s.h.
7E:293 Supervision of Elementary School Mathematics 2-3 s.h.
7E:255 Supervision of Intermediate Grade Reading 3 s.h.
7E:298 Curriculum Development in the Pre-Kindergarten 3 s.h.
7E:280 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

Secondary Level

Required
7S:291 Secondary School Curriculum 2-3 s.h.
7D:392 Field Service Project in Educational Administration (secondary) arr.

Electives
7F:117 Philosophies of Education 2, 3, 5 s.h.
7P:131 Educational Psychology 3 s.h.
7P:142 Introduction to Statistical Methods 3 s.h.
7L:153 Collective Bargaining 3 s.h.
7L:158 Personnel Management 3 s.h.
7S:186 Curriculum Foundations 2-3 s.h.
7D:236 Administration and Supervision of Special Education 3 s.h.
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7D:262 School Organization Patterns 3 s.h.
7C:270 Issues and Trends in School Guidance 2-3 s.h.
7D:290 Improving Instruction in the Secondary School 3 s.h.
7D:291 Administration of Professional Personnel 2-3 s.h.
7D:295 Financial Management of Local School Systems 3 s.h.
7D:297 Theory in Administration 3 s.h.
7D:297 Legal Aspects of School Administration 2-3 s.h.
7D:394 Seminar: Supervision and Administration 2-3 s.h.

Central Staff Administration

Required
7F:143 Introduction to Statistical Methods 3 s.h.
7D:303 Computer Applications in Education 2-3 s.h.
7D:305 Financial Management of Local School Systems 3 s.h.

Electives
To be selected with the approval of the advisor.

Thesis
A student electing the M.A. program with thesis must take 7D:393 M.A. Thesis in Education Administration and a final oral examination on the thesis.

Comprehensive Examinations
The student takes two three-hour examinations in areas of emphasis selected with the approval of his or her advisor.

Ed.S. in Educational Administration

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 desiring certification plans a program approved by an advisor to meet State of Iowa certification requirements.

Course Requirements

7P:121 Educational Psychology 3-4 s.h.
7F:117 Philosophies of Education 2, 3, 5 s.h.
7D:201 Foundations of School Administration 3 s.h.
7D:297 Theory in Administration 3 s.h.

Program Emphasis

Students must complete the balance of their minimum required hours (minus required core courses) in one of the following areas of emphasis. Courses specifically listed in each area of specialization are the required courses.

Elementary School Administration
7P:150 Introduction to Educational Measurement 3 s.h.
7D:261 The Principalship 3 s.h.
7D:262 School Organization Patterns 3 s.h.
7E:300 Design and Organization of Curriculum 3 s.h.
7D:303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
7D:305 Seminar: Supervision and Administration 2-3 s.h.
7D:391 Analysis and Appraisal of Curriculum 2-3 s.h.
7D:393 Supervision of Instruction 2-3 s.h.

Secondary School Administration
7C:191 Curriculum Foundations (same as 7E:117) 2-3 s.h.
7P:150 Introduction to Educational Measurement 2-3 s.h.
7D:203 Computer Applications in Education 2-3 s.h.
7D:261 The Principalship 3 s.h.
7D:290 Improving Instruction in the Secondary School 3 s.h.
7D:295 Secondary School Curriculum 2-3 s.h.
7D:290 Issues and Trends in School Guidance 2-3 s.h.
7P:191 Introduction to Statistical Methods 3 s.h.

General School Administration
7C:191 Design and Organization of Curriculum 2-3 s.h.
7L:261 Secondary School Curriculum 2-3 s.h.
7D:203 Computer Applications in Education 2-3 s.h.
7D:290 Administration of Professional Personnel 2-3 s.h.
7D:295 Financial Management of Local School Systems 3 s.h.
7D:290 Legal Aspects of School Personnel 2-3 s.h.
7D:299 Legal Aspects of School Administration 2-3 s.h.
Cognates
The student must complete a minimum of six semester hours bearing a cognate relationship to educational administration, subject to the adviser's approval.

Electives
The student chooses electives comprising the 60-semester-hour requirement for the Ed.S. degree. In the program for generalist or staff administration, the student may choose electives for specialization in such fields as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

Research
All candidates for the Ed.S. degree must complete a formal research paper (four semester hours) dealing with a specific problem in school administration or instruction.

Comprehensive Examination
The comprehensive examination for the Ed.S. degree comprises one-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related or cognate field.

Ph.D. in Educational Administration
The purpose of this program is to prepare students for positions at all levels of school administration, to do research in educational administration, and to teach educational administration at the college or university level.

All prior preparation and experience is carefully analyzed and a sequence of courses is 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 of at least one aspect of educational administration.

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 nine-semester hour minimum requirement from outside the College of Education. Proficiency in two foreign languages must be demonstrated.

Comprehensive Examinations
Each doctoral student must complete satisfactorily an extensive six-hour comprehensive examination in 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 adviser and the division chair.

Students pursuing doctoral programs in areas other than educational administration desiring to utilize some aspect of educational administration as an area of concentration for which they would request a comprehensive examination should consult with an adviser in the Division of Educational Administration early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open for this purpose to other doctoral students provided they meet the necessary prerequisites for specific course registration. The student should complete approximately 12 semester hours in one area of specialization before requesting a comprehensive examination. If the student decides to use a field of educational administration as a related comprehensive area, the student should plan to complete approximately 18 semester hours of diversified course work in educational administration.

Research
Disertation Prospectus
The student must write a formal dissertation prospectus and submit it to a doctoral committee for approval. The student and adviser determine the time for completing the prospectus. Final evaluation of the prospectus is made in a meeting of the committee.

Completion of the Dissertation and Final Examination
The student must accumulate a minimum of 57 semester hours of credit or research for the dissertation. Work for the doctoral culminates in a 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 session in which he or she graduates.

Admission
Applicants must satisfy Graduate College requirements. Candidates are selected through a faculty review process. Factors considered include applicants' grade point average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses
Educati0nal Administration
10:00 Foundations of School Administration
10:02 Computer Applications in Education
10:03 Instructional Supervision and Management
10:04 Educational Systems Analysis and Operations Research
10:05 Individualized Instruction, Foundations
10:06 Individualized Instruction, Theory
10:07 Individualized Instruction, Personnel
10:10 Individualized Instruction, Finance
10:11 Individualized Instruction, Law
10:12 Individualized Instruction, Elementary Administration
10:13 Individualized Instruction, Secondary Administration
10:14 Individualized Instruction, Supervision
10:15 Individualized Instruction, Curriculum
10:16 Individualized Instruction, M. D. School Administration
10:17 Individualized Instruction, Special Education
10:18 Individualized Instruction,D. S. School Administration
10:19 Administration and Supervision of Special Education

For purposes only by directors of special education programs.

Professional preparation in school administrative personnel provides a foundation..
for and skill practice in roles performed by doctors of special education. Same as TU 550.

10.07 Instruction in Special Education 2.0-3.0
Organization, supervision, and administration of special education programs. Content and procedures of special education programs. Focus on developing administration program.

10.08 Special Education Reform 2.0-3.0
Organizational approaches analyzed with specific attention devoted to emerging patterns and new trends in instructional methodologies.

10.09 Special and Community Relationships 2.0-3.0
Community analysis, politics and education. Problem solving skills in schools and public community. Research, evaluation and program improvement techniques. Values and ethics.

10.10 Policies of Education 5.0-6.0
Formal and informal influences - political action at the local, state, and federal levels - and educational legislation. Issues and policies. Legislative and executive branch of government.

10.11 Seminar: Systems Evaluation in Education 3.0-4.0
Design of educational evaluation systems. Executive programs and personal assessment in service programs, program evaluation, and educational research.

10.12 Administration of Professional Personnel 3.0-4.0
Problems of administration personnel, including employment, personnel selection, and administration of educational and professional personnel.

10.13 Planning and citizen involvement 3.0-4.0
Overall subject matter planning of educational facilities and the development of an efficient and effective system of facilities within the local, state, and federal levels. Overview of current planning and design systems of state public support.

10.14, 15 School Business Administration 1.0-2.0
Introduction to school business administration. A study of school financial statements with emphasis on the fiscal management, bookkeeping, budgeting, and management of school systems.

10.16 School Business Management Systems 1.0-2.0
Overview of school business administration with an emphasis on fiscal management, including budgeting, financial aids, bookkeeping, and management of management techniques.

10.17, 18, 19 School Finance 1.0-2.0
Administration process, leadership and organizational behavior. Evaluation of financial systems and methods of developing theoretical contracts for the description, analysis, and methodology of administrative behavior.

10.20 Legally Aspects of School Personnel 1.0-2.0
Emphasis on the teacher and student relationship, collective bargaining, rights, privileges, and responsibilities of school personnel; emphasis on the legal aspects involved in the management of teachers. Overview of personnel management systems. Designed for teachers and administrators.

10.21 Legally Aspects of School Administration 1.0-2.0
Emphasis on the role of the school administration in school organization, administration, and evaluation. Legal aspects of personnel and student conduct and discipline, and intergovernmental relations, use of centralized and line procedures plus court decisions. Designed primarily for administrators but may be of interest to teachers.

10.22 Seminar: Urban Education 1.0-2.0
Problems of urban centers related to education. city, government, institutions, small-state research projects developed by students. Specials in urban systems and urban cultures are used to approach as resource people. Same as: 106, 106. 106.

10.23 Seminar: Administration and Coordination of Curriculum 3.0-4.0
For advanced students having prior course work in administration and curriculum, opportunity to do an in-service work in specific problems associated with the administration of curriculum development, implementation, and appraisal methods.

10.24 Seminar: Supervision and Administration of Curriculum 3.0-4.0
In-depth study of issues of major significance to school organizational and instructional evaluation of school curriculum. Analysis of specific programs. Open to teacher supervisors and administrative personnel. Prerequisite: 10.23. 10.23 of eligibility, and consent of instructor.

10.25 Seminar: Problems in School Administration 3.0-4.0
Study of the role of the school superintendent in the development of school government and general public relations; issues of broad school planning, evaluation and decision-making processes promoting improved school management-relationship model building.

10.26 Seminar: Computer Applications in Education 3.0-4.0
Research and practical application of computer to educational administration, instruction, and research. Prerequisite: 10.23 or concurrent enrollment.

10.27 Seminar: School Business Management Administration 1.0-2.0
Problems of school business management, with emphasis on contemporary issues. Course should enable student to design, conduct, and analyze studies in school business management. Prerequisite: 10.23.

10.28 Seminar: The Economics of Education 3.0-4.0
Exploration of the relationship between education and economics, including supply and demand, revenue allocation and productivity, educational planning, efficiency and effectiveness. Prerequisite: 10.23.

10.29 Seminar: Current Issues in Special Education Administration 1.0-2.0
Reviews new developments in administration, major concerns raised in recent years. May be repeated for credit. Prerequisite: 10.23 and consent of instructor. Same as: 10.23.

10.30 Seminar: Research Design 1.0
Development of skills in any prospective decision-making process. Methods of data gathering, design, language, logical test for graduate students working toward a doctorate degree.

10.31 Research Practicum 1.0-2.0
Small scale research projects developed and supervised in educational planning, design, management, evaluation, and design of research. Prerequisite: 10.23, 10.23 of eligibility, and consent of instructor.

10.32 Educational Administration Practicum 3.0-4.0
Supervised educational projects with emphasis on educational administration problems including organization, management, planning, and management of assignments to current and previous and past research projects. Prerequisites: 10.23, 10.23 of eligibility.

10.33 Seminar: Organizational Theory and Educational Administration 3.0-4.0
Students select work of particular interest in planning and organizational systems and identify specific problems for presentation and discussion. Prerequisites: 70.201, 70.201. 10.23 of eligibility, and consent of instructor.

10.34 Seminar: Value Problems in the Administration of Nonformal Education 1.0-2.0
Philosophical and sociological issues underlying the American system for administration of public education. Various issues or field of social concerns and an election of field education and educational experiences for social change. Same as 10.33.

10.35 Analysis and Apparel of Curriculum 3.0-4.0
Curriculum analysis in terms of systematic and analytical procedures for identifying and measuring the essential features and components of the school curriculum and for evaluating the school curriculum and its relationship to programs and other curricula, and supervision programs or projects.

10.36 Seminar: Leadership 3.0-4.0
Problems and procedures in teaching effectiveness and leadership research findings. Designed for administrators and supervisors at the center of formal and informal teaching settings emphasizing recognition of measurement techniques appropriate to diverse student populations.

10.37 Seminar for Education Executives 3.0-4.0
Purposed for practicing school administrators emphasizing on problems within an organization, specific problem, determined by administrators attending.

10.38 Seminar Topics in Educational Administration 1.0-2.0
Individual and group investigation of contemporary problems in educational administration. Prerequisites: 10.23 and consent of instructor.

10.39 Seminar: Case Studies in School Administration 2.0-3.0
Case study of major administrative problems in a school setting. This seminar is intended for the principal in educational administration.

10.40 Field Service Project in Educational Administration 2.0-3.0
Field service project based in a school setting. Designed for those interested in master's level qualification for approval and supervision. Prerequisite: consent of instructor.

10.41 M.A. Thesis in Educational Administration 1.0-2.0
Supervision of the research, design, and writing of a thesis. May be repeated for credit.

10.42 Educational Special Research in Educational Administration 1.0-2.0
Supervision of the design, writing, and editing of a study as a primary source. May be repeated for credit.

10.43 Ph.D. Thesis in Educational Administration 1.0-2.0
Supervision of the research, design, and writing of the thesis of the Ph.D. candidate providing an individual research topic. Combined with consent of advisor.
In addition, all students are required to successfully complete 7F:010 Seminar: Alternative Research Strategies and 7H:035 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 set of phenomena. The academic programs in the division encompass that complexity. Degrees are offered at all levels. There is emphasis on both research and practice. The research, teaching, research, and service activities of the faculty, and the work of the graduates of the degree programs, illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Undergraduate Major in Health Occupations Education
The health occupations education major has been developed 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 will complete courses in the health education and additional course work in the health occupations field and/or支持ing areas. Students making application to this program must hold current appropriate certification, licensure, or registry appropriate to the area of health occupations education in which they wish to teach, e.g., dental assisting, medical office assisting, respiratory therapy, and the like. The health occupations education major is planned upon this base, and provides work in professional education and the liberal studies appropriate to teachers who wish to achieve a baccalaureate degree.

Applicants to this program must satisfy criteria for admission to the Teacher Education Program (TEP) of the College of Education.

Program requirements:

Professional Education Component
7P:131 Educational Psychology 3-4 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.
7N:111 Principles of Instruction for Postsecondary Faculty 3 s.h.
7K:112 Teaching of Adults 3 s.h.
7H:117 Foundations of Vocational Education 2 s.h.
7K:190 Seminar: Health Occupations Education 1-4 s.h.

7H:191 Community College Teaching Internship 12 s.h.
or
7S:181 Observation and Laboratory Practice in the Secondary School 12 s.h.
7H:122 Curriculum Development: Applying to Community College and Health Careers 3 s.h.
Appropriate course in social foundations 2-3 s.h.
MA险ent specialty course work in health occupations education

Graduate Programs
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, curriculum and instruction, or continuing education positions in two- and four-year institutions, and is appropriate for professionals in student affairs, human services, business management, development officer, assistant to the president, director, in-service director, and division or program chair in secondary and higher education. Admission to the Graduate College is 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.

Specialist in Education
The Ed.S. program provides advanced graduate education in the areas of administration, curriculum and instruction, community college administration, and continuing education for students not generally planning to continue for the doctorate. The specialist degree may also be awarded upon completion of a joint program in higher education and an academic field comprising a minimum of 60 semester hours of graduate work or upon completion of a higher education sequence following a master's degree program.

Admission
Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates will be
selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for regular admission. An interview is recommended.

Major in Higher Education
Requirements for the Ed.S. major in higher education are:
At least 18 semester hours in professional education and related fields including a structured internship determined in consultation with the adviser to be appropriate for one of the following four areas: administration, curriculum and instruction, community college administration, and continuing education.
At least 28 semester hours in the area of specialization to be determined in consultation with the adviser.
Ten semester hours of electives to be approved by the adviser.
Research conducted under registration in 7H395 Educational Specialist Research in Higher Education for four semester hours.
Two three-hour comprehensive examinations:
An examination to cover the field of higher education in general.
An examination in one of the four comprehensive areas of specialization, including a structured internship.
7h 219 Intern Seminar: 1-3 s.h.
7h 310 College Teaching Internship: 1-9 s.h.
7h 115 Post-High School Staff Development Workshop: 1-2 s.h.
7h 91 Audiovisual Equipment for Instruction: 1-5 s.h.
7p 131 Educational Psychology: 3 s.h.
At least 28 semester hours in the area of teaching specialization.
Ten semester hours of electives to be approved by the candidate's adviser.
Research conducted under registration in 7H395 Educational Specialist Research in Higher Education for four 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 in that field, and followed by oral examination.

Related Fields
Students majoring in another field and desiring to complete a related field in higher education should consult with the higher education adviser early in their studies. Plans of work will be developed individually for each student.

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.S. research project during the internship.
Participants must be willing to travel to a community college and reside there for the one-semester program. Some interns are accommodated at nearby community colleges, but preference will be given to those willing to travel for that experience.

Doctor of Philosophy
The Ph.D. program continues to attract persons who are likely to serve as administrators, specialists, researchers, and teachers in postsecondary institutions or related public or private agencies.

The program offers four areas of concentration: general administration, curriculum and instruction (academic administration), community college, and continuing education (adult education).
The program requires a minimum of 90 semester hours beyond the bachelor's degree.
The candidate chooses one area of concentration and must earn 16 to 24 semester hours in that area. Ordinarily the candidate chooses a related field of 9-11 semester hours or a minor (approximately 30 semester hours) which may be met by appropriate previous coursework 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 areas include:

Special Facilities
A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses
Social Foundations and Comparative Education
7H110 Social Foundations of Education: 3 s.h.
7H171 Comparative Education: 3 s.h.

Basic principles and methods of comparison drawn from historical, cultural, and social contexts to individual, organizational, and social policy development and issues. Complementary of methodology and research techniques.
Master of Arts in Educational Measurement and Statistics

A master's degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Both positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who wish to conduct knowledge of measurement and research methodology in national development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 36 semester hours, including 12 thesis hours). 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 psychology, and courses in the development and use of evaluation instruments.

The elective credits, totaling 10 to 12 semester hours, must include at least one course in elementary, secondary, or post-secondary education. The remaining electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer programming and data processing, mathematics, and counseling.

The final comprehensive examinations typically include three-hour examinations in educational measurement and in applied statistics. The existence of the M.A. committee, the student may take two examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

Grade-point-average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate's score for either the quantitative or verbal section of the Graduate Record Examination (GRE) Aptitude Test is less than 500, the applicant will not be admitted. However, if there is otherwise evidence of superior ability, the faculty may allow acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.

Master of Arts in Reading Disability

This program provides training in reading diagnosis of reading disabilities and in the prescriptive teaching of reading. Graduates of the program can 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 program typically expect to enter doctoral programs in the field of reading.

The nonthesis program requires a minimum of 32 semester hours including the following core courses:

- TP-170 Introduction to Psychology of Reading 3 s.h.
- TP-173 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 4 s.h.
- TP-150 Introduction to Educational Measurement 3 s.h.
- TL-251 Individual Intelligence Testing 3-4 s.h.

All students must also complete at least two semesters of practicum courses chosen with the advisor's approval from the following:

- TE-717 Reading Clinic Teaching Techniques 1-3 s.h.
- TE-717 Reading Clinic Teaching Practicum 2-3 s.h.
- TE-271 Advanced Reading Clinic Techniques 2-3 s.h.
- TE-272 Advanced Reading Clinic Practicum 2-5 s.h.
- TE-365 Reading Clinic: Supervision at Level 3 3 s.h.
- TE-295 Reading Clinic: Teaching Practicum-Level 2 4 s.h.

All students must also complete a minimum of 12 semester hours in elective courses, chosen with the advisor's approval from the field of speech pathology 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:

- TP-143 Introduction to Statistical Methods 3 s.h.
- TP-243 Intermediate Statistical Methods 4 s.h.
- TP-270 Advanced Psychology of Reading 3 s.h.
- TP-273 Reading Clinic: Diagnostic Practicum 1-3 s.h.
- TP-366 Introduction to Linguistics 3 s.h.
- TP-353 M.A. Thesis in Educational Psychology, Measurement, or Statistics 2-4 s.h.

Elective courses are chosen from the same fields enumerated for the nonthesis program.

For both the thesis and nonthesis programs, the comprehensive examinations typically include a three-hour examination in reading disability and two 90-minute examinations in related fields. With the advisor's approval, the nonthesis student may substitute a comprehensive project for one or more of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. When the applicant's total score in the verbal and quantitative parts of the Graduate Record Examination (GRE) Aptitude Test is below 1000, and no other evidence of superior ability is available, the applicant will be rejected or admitted only on a conditional basis. Applicants must have two years of approved teaching experience. The faculty reviews applications as they are received.

Master of Arts in Instructional Design and Technology

The M.A. in Instructional Design and Technology is a 35-semester-hour program designed to provide basic knowledge and skills required to work in setting up training schools, business and industry, hospitals, government, and military training agencies. It may be taken either with or without thesis. The instruction program requires a minimum grade-point average of 2.5 on all previous coursework. All students are expected to attain a grade-point average of at least 3.0 for the 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:

- TP-143 Introduction to Statistical Methods 3 s.h.
- TP-243 Intermediate Statistical Methods 4 s.h.
- TP-270 Advanced Psychology of Reading 3 s.h.
- TP-273 Reading Clinic: Diagnostic Practicum 1-3 s.h.
- TP-366 Introduction to Linguistics 3 s.h.
- TP-353 M.A. Thesis in Educational Psychology, Measurement, or Statistics 2-4 s.h.

Elective courses are chosen from the same fields enumerated for the nonthesis program.

For both the thesis and nonthesis programs, the comprehensive examinations typically include a three-hour examination in reading disability and two 90-minute examinations in related fields. With the advisor's approval, the nonthesis student may substitute a comprehensive project for one or more of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.
The Ed.S. 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. with the exception that a minimum overall grade-point average of 3.0 (on all previous graduate work) is required. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of being awarded a Master of Science, graduate assistant or graduate assistant-in-training. 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 equivalent is required for the degree:

- M.A. core, without statistics, plus:
  - TP 313 Introduction to Statistical Methods
  - TP 261 Research Methods in Instructional Design and Technology

Every student must also complete 18 semester hours of prescribed course work in one of the following areas:

- Classroom Instruction
- Computer Applications
- Health Sciences Education
- Instructional Development
- Media Center Administration
- Media Production
- School Media (Enrollment 39)
- Training and Human Resource Development

Visual Studies

In addition all students must complete six semester hours in one area outside the College of Education.

The Ed.S. also requires a final Ed.S. project. The topic of the project will depend on the program, interest, and career plan of the student involved. Comprehensives are the same as those for the M.A.

Educational Specialist in Instructional Design and Technology

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practice. Such careers include positions at the university and college level, and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in area of reading disabilities prepares students for careers as reading consultants, directors of reading training, and professors who train and supervise reading specialists.

The program encompasses three substantive areas—human development, cognition/learning, and motivational/socialization. The student must complete a minimum of 12 semester hours of 200-level courses in these areas. This course work must include at least one 200-level course in both the human development and learning/cognition areas and one graduate course in motivation/socialization. In addition, the student will demonstrate substantive competence in at least one of these substantive areas. A minimum demonstration of competence requires the successful completion of a three-hour comprehensive exam based on no fewer than six semester hours at the 200-level. Additional requirements include the following: TP 320 Educational Research Methodology; a minimum of six semester hours of 200-level coursework in statistics and one semester-level course in measurement; and ten 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 Education for Psychology program. Candidates who took the M.A. degree without thesis must undertake a project in lieu at the Ph.D. level. This project must be approved by three members of the Educational Psychology faculty. The candidate's program is planned jointly by the student and the advisor.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division considers this grade point average for admission is the same as that established by the Graduate College. Normally, if the applicant's score on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, he or she will not be admitted. However, if a second candidate test score of 1000 or higher is obtained, and the other applicant's GRE scores are above the minimum requirement, this candidate may be admitted. Applicants are reviewed as received.

Doctor of Philosophy in Educational Psychology

This program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practice. Such careers include positions at the university and college level, and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in area of reading disabilities prepares students for careers as reading consultants, directors of reading training, and professors who train and supervise reading specialists.

The program encompasses three substantive areas—human development, cognition/learning, and motivational/socialization. The student must complete a minimum of 12 semester hours of 200-level courses in these areas. This course work must include at least one 200-level course in both the human development and learning/cognition areas and one graduate course in motivation/socialization. In addition, the student will demonstrate substantive competence in at least one of these substantive areas. A minimum demonstration of competence requires the successful completion of a three-hour comprehensive exam based on no fewer than six semester hours at the 200-level. Additional requirements include the following: TP 320 Educational Research Methodology; a minimum of six semester hours of 200-level coursework in statistics and one semester-level course in measurement; and ten 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 Education for Psychology program. Candidates who took the M.A. degree without thesis must undertake a project in lieu at the Ph.D. level. This project must be approved by three members of the Educational Psychology faculty. The candidate's program is planned jointly by the student and the advisor.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division considers this grade point average for admission is the same as that established by the Graduate College. Normally, if the applicant's score on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, he or she will not be admitted. However, if a second candidate test score of 1000 or higher is obtained, and the other applicant's GRE scores are above the minimum requirement, this candidate may be admitted. Applicants are reviewed as received.

Doctor of Philosophy in Counseling Psychology

This program, which is approved by the American Psychological Association, provides preparation in general psychology, research methods, and therapeutic skills in order to help
Doctor of Philosophy in Educational Measurement and/or Statistics

The purpose of this program is to prepare students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methodology, positions generally occur in colleges and universities as well as in research organizations of education, large public and private school systems, testing agencies, and research centers.

Every student must complete the following core courses or their equivalents:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP-111</td>
<td>Educational Psychology</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-118</td>
<td>Biomechanics I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>TP-220</td>
<td>Educational Research Methodology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-235</td>
<td>Construction and Use of Evaluation Instruments</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-257</td>
<td>Educational Measurement and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-254</td>
<td>Decision and Regression</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-246</td>
<td>Design of Experiments</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>TP-265</td>
<td>Program Evaluation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

The student's advisor will suggest additional course work in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, 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.

Citizens who enter the program without completing an M.A. these 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 to 16 semester hours of these credit.

The record of every student admitted to the program is reviewed upon completion of approximately 16 semester hours of course work. The division faculty will consider course grades, evidence of critical and analytical skills, development since admission to the program, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of 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 substitute area will generally be one in which the candidate has at least nine semester hours of course work. In lieu of or in written examination, the student's committee may assign a written project and a master's thesis, or other research opportunity. The written examinations are followed by an oral examination in which the committee members may see evidence of the candidate's command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Admission requirements for admission to the program must hold an M.A. degree from an accredited institution. The grade-point average requirement is the same as that required by the Graduate College. If the student's score on the verbal and quantitative sections of the Graduate Record Examination is less than 500 on the verbal test total less than 1000, and there is no offsetting evidence of superior ability, the applicant will be rejected. The student who expects to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency which must be made up during the first year of residence. At least one year of professional experience in teaching, industrial, or related field is highly desirable. The faculty views applications as they are received.

Doctor of Philosophy in Educational Psychology with Concentration in Reading Disability

This program prepares graduates for careers as college teachers and directors of reading clinics, and as supervisors of remedial reading programs in larger school systems.

The course requirements are essentially the same as those for the doctoral program in educational psychology. The elective courses, however, will include some pertinent to the area of reading and related courses offered by the divisions of special education, early childhood 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 for the Ph.D. program in educational psychology.

Doctor of Philosophy in Instructional Design and Technology

The Ph.D. in Instructional Design and Technology is a 90-quarter-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 for them to become effective developers of learning and instruction and those who will be knowledgeable in the fields of instructional technology.

The admission requirements are the same as for the Ed. S. degree except that a minimum grade-point average of 3.2 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 plans, and any additional information which may be helpful in the admissions process.

It is also recommended that applicants for the Ph.D. degree arrange a personal interview with program faculty members before submitting admission forms.

All students in the Ph.D. program must complete the following courses work or approved equivalent: M.A. core without statistics.
**Psychological and Quantitative Foundations**

7P-143 Introduction to Statistical Methods
7P-242 Selected Applications of Statistical Methods
7W-201 Research Methods in Instructional Design and Technology
Six semester hours of research-related course work.

In addition, the program requires completion of 18 semester hours of prescribed course work in one of the following areas:

- Computer applications
- Health sciences education
- Instructional development
- Training and human resource development
- Visual studies

All students are also required to complete nine semester hours in one area outside the College of Education.

Before writing comprehensions each student must also submit a formal paper which reflects his or her ability to organize and write about a topic at the level that will be expected for the dissertation. This paper must be submitted to and approved by three members of the faculty in the Instructional Design and Technology program.

All students must successfully pass a nine-hour set of final comprehensive examinations. These examinations are divided into three-, four-, five-hour sections as follows:

| General instructional design | 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 normally half-time academic year appointments, and holders are permitted to devote time to a study and research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistants are appointed to the Iowa Testing Programs. Duties are varied, including such responsibilities as test development, test norming, and computer experience. Employers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs which are not specific to the programs cited above, they may be directed to the program directors.
Certification requires a major of at least 30 semester hours of course work in a subject area taught in the secondary school. Course requirements for each major are available in the Division of Secondary Education Office, N293 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
- Coaching
- Communication and Theatre Arts (Speech)
- English
- Foreign Languages - Spanish, French, German, Russian, and Lithuanian
- 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, economics, geography, history, political science, psychology, and sociology

*Available as an additional approval area only. A major in another subject matter area is required for certification.

Students planning to teach art, music, or physical education typically complete a program which 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:

- 75:91 Introduction to Teaching 2 s.h.
- 75:100 Issues in Education 2 s.h.
- 75:75 Educational Psychology and Measurement 3 s.h.
- 7W:52 Introduction to Microcomputing for Teachers 1 s.h.
- 7X:170 Human Relations for the Elementary Teacher 3 s.h.

The methods or teaching course in the major field 3-4 s.h.

Student teaching 12 s.h.

With their advisor's approval, graduate students may elect to follow graduate courses in lieu of 75:91, 75:100, and 75:75. Students must complete all methods course in their major teaching field prior to student teaching.

Students in secondary education may do their student teaching at the Center for Urban Teacher Education (CUTE) through the Regents' Exchange Program via the Consortium for Overseas Student Teaching, or in the home practical area established by the College of Education. An exemption to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the contractual area or offers special cooperating teacher expertise. Additional information about the various alternatives for student teaching and application procedures may be obtained in the Office of Student Services, N210 Lurie Center. Application for student teaching must be filed in the Office of Student Services by March 15, prior to the academic year during which student teaching is desired.

Admission

Prior to taking most professional education courses (courses numbered 75, 79 or 7X) undergraduate students must be admitted to the Teacher Education Program (TEP). Application for Admission should be filed at the College of Liberal Arts Admissions Office, 119 Schaeffer Hall. In order to be eligible for admission, students must have completed a minimum of 28 semester hours of course work with a minimum cumulative grade point of 3.0. 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 become ineligible for the TEP. Students should consult a College of Education advisor in their subject matter field, or the Division of Secondary Education Office, N293 Lurie Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for "certification only" are not required to apply for admission to the Teacher Education Program. Their waiver 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 major higher criteria must be met for admission to student teaching. Students should consult their secondary education advisor and the Division of Secondary Education Office for the student teaching admission requirements for their certification program.

Graduate Programs

The Division of Secondary Education offers, or jointly administers with other departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communication and theatre arts education, curriculum and instruction, educational psychology, English education, foreign language education, home economics education, mathematics education, music education, physical education, science education, and social studies education.

In some fields, only master's level programs are offered; whereas in other fields, educational specialist and Ph.D. degree programs are offered. All degree offerings are listed below, grouped by program area.

Art Education

Master of Arts

The master's degree program is administered by the School of Art and Art History with the cooperation of the College of Education. Students make application for admission to the School of Art and Art History.

The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The strong academic emphasis of the program is to assist teachers who are themselves creative artists to become skilled literate in art theory and language of art.

Admission

Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art at the University of Iowa or a certificate to teach art. Applicants must be accompanied by a representative portfolio of the student's work consisting of eight side reproductions of art work and one example of written work. The written work may be a paper presented as their senior semester's work or it may be an original paper. Deficiencies in undergraduate art courses recommended for teacher certification, if any, will be evaluated following admission to permit students to make up the required course work concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

Degree Requirements

Studio and Art History (18 s.h.): Either 12 semester hours of studio art and six semester hours of art history or 12 semester hours of art history and six semester hours of studio art;

Art Education Seminars (6 s.h.): The Credit/No Credit system. Current Issues in Art Education;

Twelve semester hours to be specified after the student begins the program.
Thesis—Either a written or studio thesis, if a studio thesis is elected the student must pass a M.A. clearance in the School of Art and Art History; Comprehensive Examinations—A written and/or oral examination in art education; the student may elect a three-hour examination or a one-week research question.

Doctor of Philosophy
The doctoral program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The purpose of the program is to prepare college teachers and researchers in art education and supervisors of arts in state departments of education and school systems. To provide an opportunity for continuing inquiry and creative work in art history and in studio.

Admission
Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. degree in art education from The University of Iowa or an equivalent degree from an accredited degree college or University. Application to the program must be accompanied by a representative portfolio of the candidate's work, consisting of 12 side reproductions of art work and two examples of written work. The written work may consist of papers previously written for a course or may be original papers. These should be submitted to the office of the College of Education, 13 North Hall. In the case of course work deficiencies, the student must register for pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or completion of the doctoral program.

Degree Requirements
At least 50 semester hours of graduate work beyond the M.A., planned with the student's advisor, including at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, childhood education, psychology, sociology), and 15 semester hours in courses meeting the individual's needs to be specified by the student when he begins the program. (7) 306 or 7E306 introduction to research in art education; comprehensive examinations, both oral and written. The written examination consists of an in-depth research problem assigned by the examining committee and to be completed within four days after which oral examination on the project is held; the written portion of the examination is not intended to relate directly to the dissertation proposal; satisfactory completion of a written dissertation for at least 12 semester hours, which constitutes a contribution to scholarship; the student is expected to prepare a dissertation proposal and defend it before the dissertation committee; an oral examination on the dissertation in the Ph.D. oral examination.

Communication and Theatre Arts Education
Master of Arts
The purpose of the program is to prepare teachers and supervisors of speech communication for secondary schools.

Admission
Candidates must have a grade-point average of 2.5 for conditional admission and 2.75 for regular admission. Candidates without a prior academic background in speech communication may find it necessary to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication and Theatre Arts, Communication Studies Building.

Degree Requirements
At least 30 semester hours of approved graduate courses, at least 24 of them at this institution;
A graduate level course in communication;
36,500 Introduction to Research;
A graduate level seminar in the Department of Communication and Theatre Arts;
Six to nine semester hours of graduate courses in education, selected in consultation with the candidate's departmental advisor;
A paper or project involving substantial scholarship investigation and writing, which normally will be done in a seminar and presented to the committee prior to the comprehensive examination;
A comprehensive examination consisting of three two-hour segments to be defined and limited by the student and an advisor at the time that the plan of study is prepared.

Master of Arts in Teaching
Designed for superior liberal arts graduates who have had few or no professional education courses, this program allows students to enrich their backgrounds by completing graduate courses in a teaching area and graduate education courses which constitute professional preparation leading to secondary teaching certification.

Admission
Applicants must have:
an accredited bachelor's degree in Speech Communication and Theatre Arts;
a minimum undergraduate grade-point average of 2.7;
satisfactory scores on the Graduate Record Examination (GRE) Aptitude Test.

Students must maintain a 3.0 grade-point average in graduate work once they are accepted into the program.

Degree Requirements
A minimum of 18 semester hours of graduate course work in Communication and Theatre Arts, including:
36,500 Introduction to Research must be taken the first time the course is offered during the student's period of residence;
A graduate seminar in any division of the department;
A graduate course in communication education;
Electives chosen in consultation with advisor.

The following sequence in the College of Education:
TP: 131 Educational Psychology—3 s.h.
TP: 117 Philosophy of Education or
TP: 107 History of Western Education—2.5 s.h.
7S: 150 Methods: Communication—3 s.h.
7S: 191-192 Observation and Lab Practice in the Secondary School—12 s.h.
7S: 187 Seminar: Curriculum and Student Teaching—3 s.h.
7X: 170 Human Relations for the Classroom Teacher—3 s.h.

Student teaching, 7S: 191-192, is generally scheduled only after completion of eight or more semester hours of graduate work in Communication and Theatre Arts, educational psychology and the methods course. The course 7S: 187 Seminar: Curriculum and Student Teaching should be taken during the student teaching semester.

Comprehensive examinations in Communication and Theatre Arts and Education similar to that required for the M.A. degree.
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 (13-14 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7F:117 Philosophies of Education 2 s.h.
7P:257 Educational Measurement and Evaluation 3 s.h.
or
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7S:281 Secondary School Curriculum 3 s.h.
7E:300 Design and Organization of Curriculum 2 s.h.
Research tool—selected in consultation with the adviser.
Cognates (4-6 s.h.)—in a subject field such as English.
Electives—selected in consultation with adviser to complete a total of 30-32 semester hours.

Thesis—students electing a thesis program:
7S:360 Masters’ Degree Thesis 2-4 s.h.

Two three-hour comprehensive examinations—one in curriculum and one in a related field in education or in a cognate field. 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 (22-23 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7S:291 Secondary School Curriculum 3 s.h.
7E:305 Design and Organization of Curriculum 3 s.h.
7S:391 Problems of Curriculum Planning 0 s.h.

At least two advanced supervision courses 6 s.h.
in secondary or elementary school subject fields
7P:287 Educational Measurement and Evaluation 3 s.h.
or
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7S:390 Problems in supervision Electives (20-35 s.h. to be chosen in consultation with adviser.)
Recommended electives include:
7F:120 Educational Sociology 2 s.h.
7F:117 Philosophies of Education 2 s.h.
7F:121 Educational Psychology 3 s.h.
7P:171 Introduction to Psychology of Reading 3 s.h.
7P:342 Selected Applications of Statistical Techniques 3 s.h.
7S:203 Computer Applications in Education 2-3 s.h.
7C:302 Theory in Administration 3 s.h.
7W:120 Introduction to Instructional Design and Technology 3 s.h.
7U:150 Exceptional Persons 3 s.h.

All doctoral candidates are required to complete at least eight semester hours of cognate work, preferably in sociology, psychology, or political science.

Dissertation and research tools—dissertation with a problem approved by the student’s major adviser in the area of curriculum and instruction. Two research tools must be selected with the approval of the student’s adviser.

7S:493 Ph.D. Thesis 0-18 s.h.
Candidates take three three-hour comprehensive examinations in secondary school curriculum, secondary school administration, and one related field 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 successful teaching experience qualifies the student for certification as a reading specialist.

See the Early Childhood and Elementary Education sections of the Catalog for a complete description of the program.

English Education

Master of Arts in English with Specialization in English Education

The purpose of the program is to provide specialization in subject matter and professional education of teaching for secondary school classroom teachers. Applications should be made to the director of graduate studies, Department of English.

Admission

A secondary school teaching certificate is required. A minimum undergraduate grade-point average of 3.0 is required. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A minimum of 30 semester hours: two-three in the area of certification, offered by the Department of English and one-third of the semester hours in professional education courses.

Regular written comprehensive examinations based on a list of elementary texts administered to Master of Arts (Library Studies) candidates in English is required.

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 of 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: plus an undergraduate major in English and a minimum of 3.0 on the GRE Aptitude Test score above the fiftieth percentile on the verbal examination. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A student will specialize in English education and one or two other areas. These may include, but are not limited to, junior high school teaching, curriculum, reading, composition, speech and drama, language origins, literature, and expository and auditory literacy. Literature for children and adolescents. An adviser and the student will plan the program of study. New 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 entitles the student to receive certification as a secondary school teacher of English.

Admission

Applicants must have a bachelor’s degree in English and have a minimum undergraduate grade-point average of 3.0. Since this is a certification program candidates cannot have qualified for
certification previously. They are expected to have no more than six 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 advisor to supplement the undergraduate major; and the following professional education courses:
7P:117 Educational Psychology 3 s.h.
7F:107 History of Western Education or
7F:117 Philosophies of Education 3 s.h.
7S:190 Individual Projects in Laboratory Practice 3 s.h.
7X:170 Human Relations for the Classroom Teacher 3 s.h.
7S:194 Methods: High School Reading or
7S:195 Developing Reading Skills in Secondary Schools 3 s.h.
JS:115 Methods: English 3 s.h.
7S:187 Seminar in Curriculum and Student Teaching 2 s.h.
7S: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 to having a secondary school teaching certificate, grade-point average of 3.0 and GRE Aptitude Test Score above the fifteenth percentile on verbal test (lowest normal of two years successful teaching experience. A student admitted to the program is expected to provide evidence of the successful completion of a substantial research paper for a course included in the first 15 residence hours. Students must maintain a 3.0 grade-point average and make satisfactory progress in the program. Candidacy is reevaluated annually.

Degree Requirements
A minimum of 72 semester hours is required.
Area of Specialization: Teaching of English (9-16 s.h.), including four of the following courses:
7S:260 Supervision of Elementary School Language Arts 3 s.h.
7F:296 Seminar: Research and Current Issues in Education 3 s.h.
7F:315 M.A. Seminar: English Education 3 s.h.
7S:415 Ph.D. Seminar: English Education 2-4 s.h. (required for two or more registrations)
Cognates and electives (15-25 s.h.) may include reading, school curriculum, literature for young people, literature of a particular genre, advanced psycholinguistics, special education, educational media, rhetoric and composition, linguistics, literary criticism, educational measurement, speech and dramatic arts. Student and advisor will select five areas of specialization in consultation with the teaching of English. Areas of specialization will typically require a minimum of nine semester hours of work in an area.

Faculty in a research tool agreed upon by the student and advisor which will help the student achieve professional objectives.

Comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The minimal requirements for eligibility to write cognate or elective area examinations vary; the general requirement is three courses in an area.

Dissertation (typically 12 semester hours)

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 graduate school teacher certification.

Admission
A bachelor's degree with a major in a foreign language and a 3.0 undergraduate grade-point average is required.

Degree Requirements
At least 18 semester hours of graduate courses in a foreign language department and the following professional education courses:
7S:91 Introduction to Teaching 3 s.h.
7P:131 Educational Psychology 3 s.h.
7S:107 History of Western Education or
7F:117 Philosophies of Education 15-125 Basic Program for Foreign Language CA (same as 9:158; 35:129) 2 s.h.

7S:116 Methods of Foreign Language Instruction 3 s.h.
7S:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
7S:187 Seminar in Curriculum and Student Teaching 1 s.h.
7X:170 Human Relations for the Classroom Teacher 3 s.h.

A comprehensive examination covering the candidate's knowledge and proficiency in the language, literary analysis, and of foreign language education.

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 "The Department of 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 intending doctoral study with advanced specialization in mathematics and education as a better foundation for teaching at the secondary level.

Admission
Candidates must meet the admission requirements of the Graduate College and except in unusual cases, hold a professional certificate to teach secondary school mathematics.

Degree Requirements
A minimum of ten semester hours of course work in mathematics approved by the student's advisor;
A minimum of four courses in mathematics education, which must include:
7S:355 Current Issues in Mathematics Education 2-3 s.h.
7S:231 Teaching Mathematics in the Middle School and Junior High School 2-3 s.h.
7S:239 Teaching the Low Achiever in Mathematics 2-3 s.h.
7S:235 Teaching Algebra 2-3 s.h.
Two courses selected from a cognate area in education. Suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.

Three-hour comprehensive examinations in mathematics and education selected with the approval of the adviser to complete 32 semester hours of credit.

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. The 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:

Competency 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 specific competencies relating to the teaching of secondary school mathematics.

Doctor of Philosophy

The program for a Ph.D. in mathematics education is administered by the College of Education. The 72 semester hours include work taken toward the master's degree. (All credit must be updated if taken more than five years previously.) Minimum course requirements are for 36 semester hours. Typically, a Ph.D. will involve 80 to 90 semester hours.

The purpose of the program is to prepare supervisors, teacher education personnel, community college personnel, and researchers in mathematics education.

Admission

Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

Degree Requirements

The mathematics education program has the following degree requirements:

A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including MTH 119, MTH 118, MTH 120, and MTH 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 six 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 goals.

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 graduate work.
- Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

Three-hour written comprehensive examinations, one in mathematics education and two examinations selected from other fields of education or mathematics. An oral examination follows the written examinations. It is the student's responsibility to plan a program with faculty members in the cognate area to select courses which 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 is required. A prospectus for the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination will be conducted in defense of the dissertation. Normally, a student will be expected to earn a minimum of 10 semester hours of dissertation credit.

Music Education

The program for the Master of Arts and Doctor of Philosophy in Music Education is 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.

Admission

The student must be a certified music teacher or in the process of completing certification requirements. A grade-point average of 2.5, excluding grades in ensembles, is required for admission to regular status.

Degree Requirements

General requirement:

25-321 Introduction to Graduate Study in Music

Major:

25-145 Counterpointal Forms
25-147 Tonal Forms
25-161 Analysis of Music History
25-301 Advanced History and Literature of Music I
25-302 Advanced History and Literature of Music II
25-305 Research in Music Education

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

Music History and Literature:

Special hour and course requirements in the history area are determined by scores on the advisory examinations.

Music Education (10-12 s.h.):

75-144 Psychology of Music
75-206 General Music Programs in Public Schools
75-240 Supervision and Administration of Music Programs

Electives to be selected in consultation with the adviser.

Two semester hours of ensemble credit.

Two to four semester hours of applied music

The amount of elective credit applicable toward the M.A. degree is dependent upon the course credit earned in the music advising examinations and the amount of credit earned in music education elective courses.
In the semester in which the student elects to complete the degree, the candidate must take a final written master's degree examination (12 semester hours). Areas of concentration covered in the examinations include music education, music theory, and music history and literature.

**Doctor of Philosophy**

The doctor of philosophy program is designed to prepare students for teaching, research, or administrative functions in the following types of positions:

- College positions—teachers of music, music education, music and music activities; band, chorus, and orchestra directors; and administrators of music departments and schools of music.
- Public school positions—music supervisors, research and curriculum consultants, and directors of city or district school music programs.

**Admission**

Application is made to the School of Music. For admission to the Ph.D. program in music education, a student must have a 3.25 grade-point average (excluding grades in ensembles), have a score above the 50th percentile on the verbal ability section of the 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 skills and success is desirable, and writing ability is highly by the music education area. The above qualifications for admission are likely determined.

**Degree Requirements**

The Ph.D. degree is granted on the basis of achievement (as determined by course grades, comprehensive and final examinations) and not on the accumulation of semester hours. The course and semester hours listed below are to be considered minimum requirements for the typical student in preparation for the satisfactory completion of the comprehensive and final examinations.

**Music (21-28 s.h.)**

**General**
- 25-321 Introduction to Graduate Study in Music 2 s.h.
- 25-295 Musical Acoustics 3 s.h.
- 25-145 Contrapuntal Forms 3 s.h.
- 25-141 Tonguing Form 3 s.h.
- Elective (25-148-152) 3 s.h.
- Music History and Literature 3 s.h.
- 25-301 Advanced History and Literature of Music 3 s.h.
- 25-302 Advanced History and Literature of Western Art Music 3 s.h.
- Elective (25-203-314) 3 s.h.
- Applied and Ensemble 4 s.h.
- "Electives" 0.2 s.h.

**Music Education (22-24 s.h.)**
- 75-240 Supervision and Administration of Music Programs 3 s.h.
- 75-144 Psychology of Music 2 s.h.
- 75-149 Behavioral Research in Music 3 s.h.
- 75-208 General Music Programs in Public Schools 3 s.h.
- "Electives" 4-6 s.h.
- 75-445 Social and Psychological Factors in Music Education 3 s.h.
- 75-141 Seminar: Contemporary Issues in Music Education 3 s.h.
- 75-342 Seminar: Special Topics in Music Education 3 s.h.

**Education (8 s.h.)**
- 7F-143 Introduction to Statistical Methods 3 s.h.
- 7F-242 Selected Applications of Statistical Techniques 3 s.h.
- Elective 2 s.h.
- "M.A. level requirements" 8 s.h.

**Examinations**

Students are required to complete an examination in three areas: comprehensive examinations, written examination, and comprehensive examination.

The comprehensive examination is an inclusive examination of the student's mastery of selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

The examination typically divided as follows: music education theory and practice and research techniques, music theory and analysis, music history and literature, and specialized music performance area.

**Physical Education and Dance**

**Master of Arts**

Requirements for this program are described in the "College of Liberal Arts" section of the Catalog, under "Department of Physical Education and Dance."

**Doctor of Philosophy**

This program is also described in the "College of Liberal Arts" section of the Catalog.

**Field House Program in Physical Education**

**Master of Arts**

See "Physical Education" in the "College of Liberal Arts" section of the Catalog.

**Doctor of Philosophy**

The Ph.D. in Physical Education program is also described in the "College of Liberal Arts" section of the Catalog.

**Science Education**

The following advanced degrees are offered in Science Education:

- Master of Arts in Teaching in the "College of Liberal Arts" section of the Catalog.
- Educational Specialist in Science Education.
- Doctor of Philosophy in Science Education.

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 competence 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 areas of history and/or the social sciences from an accredited institution, a cumulative grade-point average of 3.0, 3.0 grade-point average in history and social science courses, preferred GRE Aptitude Test score of 1000 composite of verbal and quantitative.

**Degree Requirements**

Thirty-eight semester hours distributed among history, social sciences, or related areas, with a minimum of ten semester hours in each of the fields chosen:

- 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 two to three semester hours of 98.201, 98.202, or 75.293 must be competed with the faculty member of the social studies education, unless other course work with these faculty members has been completed.

(If this option is selected)—A research or investigative problem in
Doctor of Philosophy

The purpose of the program is to prepare secondary chairs, supervisors, curriculum directors, and other education personnel, and college instructors in the social sciences and pedagogy.

Admission

Applicants must have a bachelor's degree in history or the social sciences: master's degree in history, the social sciences, or education. They must satisfy the requirements for admission to a doctoral program in the Graduate College, and have a grade-point average of 3.0 or above. A minimum GRE

Admission Test score of 1200 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent if no thesis was written as part of the M.A. An interview is required prior to regular admission.

Degree Requirements

A minimum of 48 semester hours of coursework and dissertation credit beyond the bachelor's degree and not including the requirements for the concentration.

The 90 semester hours are to be distributed among history, social science, related areas, and professional education, depending upon the background and goals of the candidate.

Seminars and courses numbered 200 or above are required in the areas of study constituting the major. A minimum of 60 semester hours of 98.201, 98.202, or 75.203 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Total requirements are tailored to the individual's program and may consist of foreign languages or other requirements. Normally this program consists of research techniques in one or more of the fields chosen for the concentration.

Comprehensive Examinations:

Normally three three-hour examinations in three of the areas of study, will be required. Depending upon the distribution of work taken, the nine hours of written examinations may be rearranged.

The Ph.D. examination 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 live as required by the Graduate College) will be selected with regard to the nature of the student's Ph.D. program and distribution of coursework. An oral examination will be conducted by the committee as a whole, must register following the written examination; Alternatives to the traditional written comprehensive examination will be considered by the candidate's committee.

Dissertation

A dissertation on a research problem in history, the social sciences, or related areas in which the dissertation director will be a faculty member of the appropriate department; or on a research problem in the social studies education, in which case the dissertation director will be a faculty member of the College of Education. A proposal of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of an oral examination will be conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy: grade-point average of 3.5 plus annual reenrollment.

Assistantships

A limited number of half-time assistantships is available for students pursuing Ph.D. degrees in social studies education. Holders of such assistantships may register for no more than 12 hours per semester, and except with special permission, must register for at least six hours per semester.

Assistantships vary in their professional experiences and others primarily involve research activities. Assistantships in some Liberal Arts departments may also be available to Secondary Education graduate students. Candidates with appropriate credentials should apply directly to the department in question or consult the College of Education advisor directing the program in their field.

Courses

75.01 Introduction to Teaching 2 s.h.

Observing and teaching students in a public or private school. Requires that the student be on the job at least 12 hours each week. Classroom visits are required to the student's classroom, including a half day of evaluation. Normally, 75.01 is a prerequisite.

75.05 Human Relations Education 2 s.h.

Overview of contemporary American secondary education, including the area of education, specific content of education, school curriculum and organization, and curriculum problems. Not to be taken with 75.201 and 75.231.

76.201 and 76.231 courses should be completed prior to enrolling in 75.01. Prerequisite: prior teaching
Elementary Physically Handicapped
First Year
7a.139 Operation to Rehabilitation of Physically Handicapped 3 s.h.
3:15 Introduction to Speech and Hearing Processes 3 s.h.
3:10 Introduction to Microcomputing for Teachers 3 s.h.
Second Year
7u.138 Methods of Teaching Physically Handicapped 3 s.h.
Third Year
7u.181 Supervised Teaching Physically Handicapped 7 s.h.
Students completing this program are recommended for State of Iowa Approval 81 (Mental Disabilities K-9).

Secondary Mental Retardation
First Year
7u.20 Introduction to Social Psychology in Special Education 2 s.h.
7u.134 Mental Retardation 3 s.h.
7u.135 Mental Retardation 3 s.h.
7u.91 Introduction to Teaching 2 s.h.
7u.91 Educational Psychology and Measurement 3 s.h.
7u.91 Audiovisual Equipment for Instruction 1 s.h.
7u.91 Introduction to Microcomputing for Teachers 1 s.h.
3:14 Introduction to Sociology: Problems 3 s.h.
3:14 Introduction to Sociology: Problems 3 s.h.
Second Year
7u.148 Teaching Mildly Mentally Retarded: Elementary 3 s.h.
7u.148 Teaching Mildly Mentally Handicapped 2 s.h.
7u.136 Teaching Mentally Retarded 2 s.h.
7u.136 Teaching Mentorship with Mentally Handicapped 2 s.h.
7u.136 Teaching the Culturally Different in Education 3 s.h.
7u.136 Mathematics for the Physically Disabled 3 s.h.
7u.185 Developing Reading Skills in the Secondary School 3 s.h.
7u.185 Facilitating Career Development in Special Education 2 s.h.
undergraduates cannot take this course by correspondence)  
7P:170 Introduction to Psychology of Reading 3 s.h.  
7P:184 Selection and Use of Media for Instruction 3 s.h.  
7A:141 Juvenile Delinquency 3 s.h.  
7A:140 Criminal Law 3 s.h.  
7U:131 Introduction to Learning Disabilities 3 s.h.  
7U:132 Introduction to Behavioral Disorders 3 s.h.  
7X:170 Human Relations for the Classroom Teacher 3 s.h.  
A course on American History or American Government 2 s.h.  
Third Year  
7U:192 Supervised Teaching with Mentally Retarded 15 s.h.  
Students completing this program are recommended for State of Iowa Endorsement 20 (Secondary Teaching) and Approval 81 (Mental Disabilities 7-12).  
Preschool Handicapped  
First Year  
7U:30 Introduction to Assessment in Special Education 2 s.h.  
7U:130 Exceptional Persons 3 s.h.  
7U:135 Mental Retardation 3 s.h.  
7U:139 Orientation to Rehabilitation of Physically Handicapped Children 3 s.h.  
3:35 Introduction to Speech and Language Disorders 3 s.h.  
3:32 Introduction to Microcomputing for Teachers 1 s.h.  
Second Year  
7U:120 Methods of Teaching Preschool Handicapped 3 s.h.  
7U:36 Practicum with Preschool Handicapped 2 s.h.  
7U:136 Teaching Moderately Handicapped (Retarded) 2 s.h.  
Third Year  
7U:193 Supervised Teaching with Preschool Handicapped 7 s.h.  
Students completing this program will be recommended for State of Iowa Endorsement 05 in Preschool Handicapped  
Undergraduate 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, work with the handicapped sponsored by community or religious organizations, extensive child-sitting experiences with handicapped children, and teacher aid experiences in classes for the handicapped.  
Documentation forms are available from the Division of Special Education Office.  
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 program 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, and 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 the M.A. as an approach to certification either as a behavioral disorder or the learning disabled.  
The M.A. program prepares students to function as teachers in resource, integrated, and self-contained classrooms. The program requires a minimum total of 28 semester hours. A list of required courses is available from the division office.  
To be admitted to the M.A. program, students pursuing certification in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given greater preference. Some students who do not wish to seek certification may be selectively admitted to the M.A. program in special education. Numbers admitted depend on the resources available.  
Educational Specialist in 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 in special education. The program requires a minimum total of 60 semester hours.  
In addition to the general graduate admission requirements listed below, requirements for admission to the program include a master's degree in special education or equivalent preparation and certification in special education and at least one year of full-time teaching experience before admission to the program.  
Educational Specialist in Special Education Administration  
The primary objective of the program is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration. The content 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 Endorsement 48) and also qualifies the person for (State of Iowa Endorsement 81) certification in general school administration. Graduates are certifiable and employable as administrators of special education generally throughout the Midwest and the nation. The program requires a minimum total of 60 semester hours of credit.  
Admission to the program is limited on the basis of resources available. From five to eight new students are admitted each year. In addition to the general requirements listed below, admission requirements include a master's degree and at least one year of teaching exceptional children, and classroom experience as a teacher (or equivalent experience).  
Educational Specialist in School Psychology  
The purpose of the program is to provide course work and internship training in the areas of education and psychology necessary for eligible graduates to be competent school psychologists. Successful completion of the program qualifies the person for certification to serve as a school psychologist (State of Iowa Endorsement 49). The program requires a minimum total of 60 semester hours.  
The deadline for receipt of applications for admission to the school psychology program is February 15. Approximately ten students are admitted each year. It is preferred that the applicant 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. The program
permits students to study and practice more 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 exceptional children except the school psychology program. The admissions committee gives great weight to applicants with several years of experience.

Facilities
Special facilities available to students in special education include the University Hospital School for mentally and physically disabled and the University Psychiatric Hospital/Child Psychiatry Program (for children and youth with behavioral disorders).

Financial Aid
A limited number of teaching and research assistantships are available to full-time students in M.A., Ed.S., and Ph.D. programs. The Janet Zober Memorial Student Scholarship is available to an undergraduate student in special education.

General Admission Requirements
Graduate admission requirements of the Division of Special Education concern to those used generally by the College of Education with the following exceptions:

Completion of the Graduate Record Examination (GRE) Aptitude Test before being admitted to the program (combined scores of 1000 or above are preferred), and Documentation of having worked successfully with children and youth.

Courses
7010. Introduction to Assessments in SpecEd 3.0 hrs.
- Students develop assessment plans in writing, develop teaching plans, and study progress toward introduction to behavior modification, introduction to OEP development, Psychometric admission to undergraduate special education program.

7212. Teaching melody Variety-Related Elementary 3.0 hrs.
- Methods of developing programs, teaching, evaluating, and modifying children with varying abilities, home-school relationships. Prerequisites: 7230, 7231, and 7232. 7230, 7231, and 7232.

7212. Teaching melody Variety-Related Secondary 3.0 hrs.
- Methods of teaching and learning skills in academic and social areas, classroom management, supervision, and discipline on a variety of levels. Prerequisites: 7230, 7231, and 7232. 7230, 7231, and 7232.

7230. Psychodrama with disability 3.0 hrs.
- Supervised experience with modifying handicaps for approximately 74 hours. Prerequisites or corequisites: 7010 or 7012. 7010 or 7012.

7235. Introduction to Handicapped 3.0 hrs.
- Introduction to theory and principles of interdisciplinary programs; appropriate modifications and teaching of desired disabilities; needed knowledge and skills and the ways to use them. Prerequisites: 7212.

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7212. Teaching melody Variety-Related Secondary 3.0 hrs.
- Methods of teaching and learning skills in academic and social areas, classroom management, supervision, and discipline on a variety of levels. Prerequisites: 7230, 7231, and 7232. 7230, 7231, and 7232.
71201 Supervised Teaching with Learning Disabled
Student teaching experience with learning disabled elementary or secondary level. Prerequisites: special education major and consent of instructor.
71209 Supervised Teaching with Behavior
Disordered Child
Student teaching experience with behaviorally disordered elementary or secondary level. Prerequisites: special education major and consent of instructor.
71210 Seminar: Supervised Teaching with Learning Disabled and Behaviorally Disordered
For students enrolled in student teaching practicum in learning disabilities or behavioral disorders. Prerequisite: consent of instructor. Credit: 210:7125 or 71215.
71216 Characteristics and Programs for Severe
Behavioral Disordered Children and Youth
Characteristics of the most severe behaviorally disordered child and youth, exceptional education methodology and programmatic strategies. Prerequisite: 71172 or consent of instructor.
71217 Evaluation Methods for Severe Disabilities
Disordered Children and Youth
Evaluation methods for severe behaviorally disordered children and youth. Skills in administration, management, summation, program supports, and assessment. Prerequisites: 71150 and 71228, or consent of instructor.
71220 Administration and Supervision of Special
Education
For prospective directors of special education. Selected topics in the field of special education. Satisfies the 70-239 requirement. Prerequisite: 71150.
71225 Practicum in School Psychological Services
Supervised practicum in psychological and evaluative evaluation in school settings. May be repeated. Prerequisite: 71150. 71240. 71251. and consent of instructor.
71226 Assessment of Learning Disabilities
Administration of individual educational assessment instruments and interpretation of test results. Strategies for remediation of learning disabilities. Prerequisite: consent of instructor.
71232 Behavioral Personology and Assessment of the Learning-Disabled Child
Understanding of the variables which influence a child's behavior. Special emphasis on in this area of education. Prerequisites: 71150 and 71251. Consent of instructor.
71251 Clinical Reasoning About Learning Disabilities
Administration of clinical reasoning tasks and interpretation of test results in psychology, learning, teaching, factors which influence performance. Prerequisites: 71142 or 71150, and consent of instructor.
71260 Integration of Assessment Information
Supervised practicum in the integration of educational, psychological, social, and medical information into written reports. Students expected to work with patients and/or families to obtain the above assessments and inform decisions. Prerequisites: 71232. 71240. 71251. and consent of instructor.
71262 Consultation Theory and Practice
Study of various models of consultation, such as behavior and organizational development. Same as 71262.
71263 Advanced Laboratory Practice with Exceptional
Children
Observation, experiment, and individual instruction in consultation to problem solving in operating, guiding, and evaluating instructional, counseling, and consultative practices for exceptional children. Prerequisite: consent of instructor.
71268 Individual Instruction in Special Education
Permits special study in areas not included in regular courses. Prerequisites: consent of instructor.
71271 Internship in School Psychology
Supervised internship in psychological consultation, counseling, and counseling in school settings. Prerequisite: 71172. Consent of instructor.
College of Engineering

Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of new processes, products, material, or system that is useful to our society. The 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 positions in design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first responsibility is to provide high quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling. The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education includes intensive research activities of a creative nature which are expected to result in original contributions to the literature at the Ph.D. level.

Programs Offered

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) degree in the major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the B.S.E. 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 and a bachelor's degree in the College of Engineering. The combined degree program may be normally completed in about five years.

Undergraduate Programs

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit including satisfaction of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E. degree must be enrolled in the College of Engineering for all last 30 semester hours, or 45 of the last 60 semester hours, or a total of 90 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 22M.35 Engineering Calculus I and 22M.36 Engineering Calculus II, or their equivalents, at a grade of C- or better, in each course. Each student who wishes to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

If a student does not graduate on the date indicated in the application, he or she must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an Iowa resident applicant must have:

- Completed the American College Tests (ACT) 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
Engineering

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 freshmen applicants must have completed the same units of mathematics as required for resident applicants, and

and Ranked in the upper 30 percent of his or her graduating class, and

and Completed the American College Test with a composite score of 25 or above and a mathematics subscore of 20 or above (or equivalent SAT score). High school physics and chemistry are pertinent knowledge to the identification 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.

Fullfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. From the applicants, the College of Engineering selects those who appear to be best qualified for the study and practice of engineering.

Undergraduate Curriculum

The undergraduate 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. Added to this base is preparation in an engineering specialty appropriate to the challenges presented by today's broad and complex technological problems. The overall objective of the curriculum program is to provide an integrated educational experience directed toward the development of the ability to apply pertinent knowledge to the identification and solution of practical problems in each of the designated areas of engineering specialization. The specific objectives of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured into four parallel茎 stems extending through the entire four years of undergraduate study. The stems 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 engineers. The practice of engineering requires the ability to utilize this education to determine practical solutions to engineering problems. This ability is developed in the analysis and design stems. The course sequence in this stem begins with 57:1 Introduction to Engineering in the freshman year and terminates with senior-level design courses during the senior year.

Approximately one-half of the courses in the four stems are common to all of the programs. This group of common courses is called the engineering core and consists of courses in mathematics, chemistry, physics, rhetoric, and engineering science and design. Most of the core courses are scheduled in the first two years. This feature 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 the student 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 includes a required group of courses which provides a common depth and breadth of focus to every student in each of the curricular programs. These courses provide the common background which the faculty expect of every graduate in each of the respective programs. The remaining courses are technical electives chosen by the student in consultation with his or her academic adviser. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken at the senior level.

The curriculum for the freshman year is:

First Semester

4:13 Principles of Chemistry I 3 s.h.
10:1 Rhetoric 4 s.h.
or
10:3 Rhetoric 4 s.h.
25M:35 Engineering Calculus I 4 s.h.
57:1 Introduction to Engineering 2 s.h.
25M:35 Engineering Graphics 2 s.h.
Total 15 s.h.

Second Semester

4:16 Principles of Chemistry Lab I 2 s.h.
10:2 Rhetoric 4 s.h.
or
Humanities or social science elective 3 or 4 s.h.
25M:35 Engineering Calculus II 4 s.h.
57:4 Engineering Computation 3 s.h.
57:7 Statistics 2 s.h.
Total 14 or 15 s.h.

A maximum of four semester hours is allocated for satisfaction of the rhetoric requirement. Students who qualify for 10:3 are able to satisfy the requirement with the single course, while those required to complete the eight-semester-hour sequence of 10:1-10:2 may enroll only four semester hours toward their engineering program.

The courses listed above are required of all students in engineering. 4:14 Principles of Chemistry I is recommended during the second semester for students in biomedical or chemical engineering majors. Since the College of Libera 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 electives 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 is to select, with the adviser's approval, a minimum of 18 semester hours of humanities and social sciences electives, which are to include at least six semester hours of course work in the humanities and at least six semester hours in the social sciences. Because the social science courses of this curricular stem in industrial engineering are specified and are not open to the same free selection excess, students considering a major in this program should consult the industrial and management engineering program requirements presented later.

The humanities and social sciences courses may be selected from those approved to satisfy the humanities and social sciences courses and the foreign civilization and culture requirements of the College of Liberal Arts general education requirements and/or appropriate courses from any of the following schools:

American Studies; art and art history; classics; Asian languages and literature; communication and theatre arts; English; history, literature, science, and the arts; music; philosophy; religion; linguistics; or other departments approved by the College of Engineering faculty. Students should consult a faculty advisor in the first semester for additional hours of electives (100-level) course work. It is recommended that these hours be in a humanities language, history, or social science course which will provide a sufficient depth of knowledge in an elected subject of study. This advanced course work will build on a previously completed elementary course in the same department. Students are not required to satisfy any of the humanities and social sciences requirements and the courses are electives or beyond the second-year level. Studio courses in art and music will not fulfill the requirement.

The social science electives may be selected from those approved to satisfy the social sciences requirement of the College of Liberal Arts general education requirements and/or appropriate courses from the following departments: anthropology, economics, geography, political science, psychology, sociology, and social work, or other departments.
approved by the College of Engineering faculty. Students may select courses from departments not included above with the approval of the assistant dean. To assure an adequate depth of knowledge in a chosen area of study, students shall select a minimum of three semester hours of advanced (100-level) course work. This material will logically build on the background previously acquired in an elementary course.

Combined College of Engineering-College of Liberal Arts Program

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum 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 Dean's Office in either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisers from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. The specifics of the combined program can normally meet the baccalaureate 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 and engineering.

Students selecting this program will be required to complete the general education requirements and the requirements for the major, and the residence requirement in the college of Liberal Arts. The specific engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the social sciences are regularly accepted for credit by both colleges, the student is in many cases satisfying the requirements for two colleges in the making of a particular course.

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 credit hours of residence course work beyond the requirements of 128 semester hours for the first degree program with a minimum grade point of 2.0. The additional credit hours must include all courses required by the program selected for the second degree, including the senior level design course sequence of the second degree program as well as any specific socio-humansistic elective requirements. The technical electives selected for the second degree program must be of such variety and level that the student will meet at least a minimal level of competency normally expected of graduates of that program.

A student must file an application for admission to the second degree program approved by the faculty of that program and submitted to the Office of the Dean prior to the time the student initiates the 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 completed and to be completed for the first engineering degree program. The approved plan will be submitted to the Office of the Dean before the student begins course work in the second program and will be placed in the student's permanent file. Any changes in the plan must be approved by the student's faculty adviser in the second program and by the department chair (the current petition form may be used for this purpose) and submitted to the Office of the Dean for inclusion in the student's permanent file.

Minors

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor or minors in any degree-granting department or division program within the College of Liberal Arts. Students interested in a chemistry, physics or mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas. A minor in mathematics will be entered on the student's permanent record.

Students must inform the Registrar's Office of their fulfillment of minor requirements as a means of applying for a degree to assure that the minor designation is included in the graduate's transcript.

Minor in the College of Business Administration

Requirements for a minor are: two economics courses, two accounting courses, a management course, a finance course, and a law or environmental course. In addition to these required courses, a student normally would also 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 22M:35, 57-4, and 225-39. A 2.0 grade-point average in the courses applicable to the minor is required. Students who wish to complete a Master of Business Administration degree later should select courses which will satisfy M.B.A. requirements.

Minor in the College of Liberal Arts

Requirements for a minor are: a minimum of 16 semester hours in the minor department, at least 12 of which are in advanced courses accessible to that student. Students not declared 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.

Students interested in physics, chemistry, or a mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government. While the student can earn a substantial portion of his college expenses during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work experience provided by participating employers and by matching student interest and ability to the work situation. The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study period and a consequent improvement in academic work. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the potential professional 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 is normally five years and includes the equivalent of at least one full year of work experience. The co-op option is an option available to qualified students on a voluntary basis.
A student whose semester and cumulative grade-point averages equal or exceed those appropriate to his or her classification is 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 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. A student dismissed from the college for poor scholarship may petition the advisor 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 advisor and the instructor during the first three weeks of the semester (or one and one-half weeks of the summer session). Courses may be dropped with permission of the advisor and the instructor at any time during the first ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week. In this case, special approval must be granted by the advisor, the course instructor, and the associate dean. Under no circumstances will a student be permitted to drop after the beginning of the scheduled final examination period.

Cancellation of Registration
A student in good academic standing who cancels his or her registration during the first four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the advisor to the dean.

A student on scholastic probation who cancels his or her registration at any time without good cause will be considered as having been dismissed for poor scholarship.

Cancellation cards for students enrolled in the college will be signed by the advisor to the dean only after recommendation of the student's advisor and program 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 wishing 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 advisor and instructor must be obtained on the proper form and the completed form 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 P and N will not be used in computing the grade-point average and the mark of N will not count as earned hours.

No course work taken in the College of Engineering under a pass/nonpass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option
A student may elect to repeat a course with the only new grade being counted in his or her grade-point average. This option can only be elected prior to the time of completing a course for which the highest grade is a prerequisite. The option may be elected no more than three times and it may be applied only once to a given course. Transfer students may apply the option on a retroactive 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 43 and 88 semester hours of credit may use this option for no more than six courses. A student with between 89 and 118 semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the dean.

Satisfactory-Fail Courses
The noncredit professional seminar courses, which are required in each of the professional programs, are offered on a satisfactory-fail basis. All other engineering courses are offered on this basis. An F (failure) grade earned in such a course will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades
A mark of I (incomplete) or W (no report) which is not replaced by a final grade prior to the announced deadline within the student's next regular semester of registration will be replaced by a final grade of F (failure), except that students with no complete work in the current 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 to their final registration.

To be eligible for this form of recognition, the student must take his or her final 60 semester hours of study in residence in the college, and must have completed at least 60 semester hours of study through the college before his or her final registration. Students in the lumbered engineering-liberal arts program are eligible for this recognition regardless of the college in which they complete their residence requirements.

Dean's List

Engineering students achieving grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work with no I or D grades still standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.

President's List

Students earning a 4.0 grade-point average during the consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work each of the two semesters with no I or D grades still standing, are recognized by inclusion on the president's list.

Other College Policies

Advanced Placement

Students who have pursued college-level courses in high school through the Advanced Placement (AP) Program of the College Board and have achieved satisfactory scores on the college-level examinations administered through the AP Program will be awarded college-level credit. Credit earned through a BC level calculus course in the AP Program may be applied to the engineering course requirement of 22M.35 Engineering Calculus I. Credit earned through other AP courses may be also applied to other engineering course requirements as appropriate in content and level as long as credit for those requirements has not already been earned by other exams or by course equivalencies. 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 seven semester hours of credit earned on the social science general exam and/or on the subject exams on separate social science topics may be applied to satisfy a portion of the social science requirement. Similarly, up to seven semester hours of credit in the general and/or separate subject exams in the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of ten semester hours of CLEP credit may be applied to the total humanities and social sciences requirements for engineering. Credit earned on other CLEP subject exams may also be applied to meet other course requirements as appropriate in content and level on a non-duplicate basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination

Students who have acquired knowledge in engineering subject matter from sources other than formal course offerings may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering core course may be earned by achieving a satisfactory test score on a comprehensive examination similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to apply for such an examination should contact the assistant to the dean.

Credit by Validation

Students with course credits obtained at an unaccredited institution may request the validation of these credits up to a maximum of 12 semester hours. Credit may be validated upon the student having completed at least 24 semester hours of credit at The University of Iowa, which will include appropriate courses for which the work to be validated are prerequisites. Students with unaccredited work who wish to utilize this procedure should contact the assistant to 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 at other colleges or universities. At the time of application for admission to the College of Engineering, official transcripts from each college attended must accompany the application for admission. After the credit has been certified as college level work from an accredited institution by the Office of Admissions and after admission has been granted, the credit is evaluated by the assistant to the dean either prior to or during the student's first semester of enrollment in the College. Satisfaction of engineering course requirements by transfer coursework 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 courses, and the grades earned for such courses are C or better. Students wishing to satisfy the engineering social sciences and humanities, or the University of Iowa 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 would be well advised to discuss the planned transfer with officials 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 assistant to the dean. Once enrolled in the College of Engineering, all course work taken at other institutions must be pre-approved by the assistant to the dean if that credit is to be applied to meet engineering degree requirements.

Course Substitutions

For students in the College of Engineering, the substitution of a required course by an alternate 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 by the chair of the academic department in which the student is majoring. In the petition involves a required engineering core course, then it must also be approved by the Department Head of the academic department in which the student is majoring. All petitions are evaluated and may be approved by the chair of the College Curriculum Committee. Substitutions for required courses or core courses in other circumstances. Substitutions of courses, or core courses in other circumstances, must be approved by the department head, and may be approved by the department chairman. All petitions must be forwarded to the Office of the Dean for inclusion in the student's file.

Auditing Courses

Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the course instructor and the advisor. The mark of W will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory; if unsatisfactory, the mark of IN will be assigned. Students completed with a mark of W will not meet any requirements for any competitive credit toward graduation. Auditing may not be used as a means to test or to correct deficiencies in the regular course. Students wishing to register for a course on an audit basis, the course would be listed on the registration card in the usual manner. Auditing students will not be given credit toward graduation and the instructor's signature will also be required if the course.
 registration from audit to credit or 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 determined by a collegiate policy. In cases of cheating on exams or quizzes, the policy recommends that the instructor reduce the student's grade, endorses the assignment of F for the course. When a course grade has been reduced to an F, the student may not drop the course nor use the Second Grade Option to eliminate the failing grade.

At the beginning of each semester, course instructors shall individually announce and explain their policies on acceptable levels of student-student collaboration on graded work, which includes homework assignments, lab or design projects. When a policy is violated, a zero shall be assigned for the total portion of the course grade allocated to the requirement in which the violation occurred. The instructor shall send a written report of any disciplinary action to the Office of the Dean and the report shall be placed in the student’s file. The student shall be notified by the Office of the Dean of any disciplinary action reported and shall be informed of appeal procedures if the student wishes to protest the action.

Student Complaints Concerning Faculty
In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty should first attempt to resolve the issue with the professor(s) involved. If satisfied with the faculty member's action, the student should discuss the complaint with the chair of the faculty member's department. Students who are uncomfortable with dealing directly with a faculty member or a department chair, may seek assistance from the Faculty Ombudsmen at attention times to resolve the complaint. However, it is anticipated that grievances generally can be satisfactorily resolved most specifically at the faculty or chair level. If the student is not satisfied with the outcome of the procedure, the student 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 leadership in student planning and carrying out activities involving the entire college, such as student and faculty picnics held each fall and spring, the homecoming football game, the 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 Blackboard. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the Institute of Industrial Engineers, the 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 Upsilon 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, Pi Lambda Upsilon, honorary chemistry and chemical engineering society; Phi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society, Alpha Pi Mu, honorary industrial engineering society, and Pi Tau Sigma, honor society for mechanical engineering students, 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 women and minorities in the college are the Women Engineering and the student chapter of the Society of Women Engineers. A local chapter of Tau Beta Pi, a national professional engineering fraternity, is active in service to the college and draws its membership from students throughout the college.

Professional Registration
Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedures is the Iowa Board of Engineering Examiners. The first step in the procedure for students enrolled in an accredited program is to pass an examination in engineering fundamentals given at the University near the year of graduation. (Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam.) Following graduation and the successful completion of the engineering fundamentals exam, the graduate receives an Engineer-in-Training (E.I.T) certificate. The final step in the procedure is to pass the advanced exam in a specialty area following a minimum of four years of approved professional experience. At this point the graduate engineer is registered "Professional Engineer."
Computer Services
Services of the Weeg Computing Center are used extensively by students and faculty of the college under the auspices of the computer college committee. The college maintains terminals and remote printers for access to the University computer systems in the CBE Laboratory. The Center for Computer Aided Design has a dedicated PRIME 750, a high speed array processor, and extensive graphics equipment for research in computer aided design. The Computer Aided Engineering Laboratory has a PRIME 750 and graphics equipment for instruction. The Electrical and Computer Engineering Department has two VAX 11/780 supermini-computers for teaching and research. In addition, a number of microcomputers and minicomputers are available within the college for specialized use by students and faculty.

Employment Placement Services
The services provided by the Engineering Placement Office are available to both current students and to alumni. The services include on-campus interviews for permanent and co-op employment, written and audiovisual company literature for more than 350 businesses, directories, open position listings, and information and assistance with resumes, cover letters, career goals identification, and interview techniques. The Engineering Placement Office, with interview rooms and resource area, is located in the Center of the Engineering Building.

Organization of the College
The College of Engineering is organized into six departments, plus three research units. The six departments are: Biomedical Engineering, Chemical and Materials Engineering, Electrical and Computer Engineering, Environmental Engineering, Mechanical Engineering, and Management Engineering. Each department offers an undergraduate degree program, with the exception of Biomedical Engineering, which offers graduate degree programs. A program track in biomechanics at the graduate level is available through the Mechanical Engineering. In addition to the departmental degree programs, the College offers an undergraduate, undegraduate degree program for students who wish to take a special program that may not be available through the traditional majors. Information about each of the degree programs follows later.

The three research units are the Iowa Institute of Hydraulic Research, the Center of Materials Research, and the Center for Computer Aided Design. Descriptions of these units follow next.

Iowa Institute of Hydraulic Research
The Iowa Institute of Hydraulic Research (IHR) is a unit of the University of Iowa's College of Engineering, having been widely acknowledged for many years to be an international leader in numerous areas of fluid mechanics and hydraulic engineering. It was formally organized in 1934 to coordinate capabilities, facilities, and resources available at the University for research or problems in hydraulic engineering. The Institute broadened its scope of activities to include fluid mechanics.

Active programs of basic and applied engineering research, conducted in five modern, well-equipped laboratories, with full time floor space exceeding 72,000 square feet, currently are being pursued at IHR in the following areas: turbulence and turbulent shear flows; boundary layers (with emphasis on thick and three-dimensional boundary layers); viscous aerodynamics; computational fluid mechanics; ship hydrodynamics; wave mechanics; water resource systems; firm engineering; sediment-transport mechanics; aquatic engineering; hydraulic structures; biological fluid mechanics; water quality; oceanography; hydraulic-energy dissipation; and pump induction.

High-level involvement of graduate students is a hallmark of practically all IHR projects. Because of its close association with the College of Engineering, many IHR students are involved in fluid engineering for industry, and its broadly based industrial research program. IHR provides advanced-degree students and postdoctoral trainees unique opportunities for valuable research, educational, and engineering experiences.

Center of Materials Research
The Center of 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 is at present strongly focused on programs of fundamental and applied research in biomaterial engineering, with particular emphasis on biomaterials and biocompatible materials. Supported projects include: traumatic head and spinal injuries, hemodynamics, cardiac mechanics, prosthetic heart valves, bone and ligament biomechanics, bone cement, total joint replacement, pulsed electromagnetic effects on tissue, and biomedical image analysis and processing.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the center. The faculty members of the center also engage in numerous consulting activities for industry, government, and other universities.

Center for Computer Aided Design
The Center for Computer Aided Design was founded to pursue the purpose of enhancing research and development of design methods utilizing modern computer technology.

The research program of the center is focused on mechanical system dynamic analysis and design, control system analysis, structural optimization, and dynamic computer graphics. A research facility consisting of a PRIME 750 super minicomputer, 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 are developing and distributing 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 being offered by the College of Engineering. The second digit of the prefix identifies the engineering college or the courses offered by the departments for a specific curriculum program. The correspondence between the second digit and the curricular programs is shown below.

1—Biomedical engineering
2—Chemical and materials engineering
3—Civil and environmental engineering
4—Electrical and computer engineering
5—Industrial and management engineering
6—Engineering core
7—Mechanical engineering

The three-digit suffix of a course number identifies the level and type of course. Generally, the suffix numbers below 200 designate courses primarily for undergraduates; numbers 150 to 199 designate intermediate level courses for undergraduates and graduates; and number 200 and above designate advanced level courses primarily for graduates. The table below provides further means of conveying information on the level and type of courses.

1—Freshman core courses
10—Sophomore core courses
20—Junior core courses
30—Senior core courses
40—Required courses in undergraduate programs
Not all of the following courses are required for each engineering major. For course requirements in a specific major, see the curriculum listing in the section for that major. None of the following courses are available to non-engineering majors unless special permission is obtained from the assistant to the dean.

51 Introduction to Engineering
Survey of various branches of engineering, engineering applications, and allocation of students to degree programs. Prerequisite: 2222.

53A Engineering Graphics
See course description in accordance with course requirements for engineering graphics, computer-aided design, and drafting. Prerequisite: 2222.

58 Computer Engineering
Digital computer programming using ORBITAN, assembly and high level languages, microprocessors, input-output, flow charts, and program development techniques with emphasis on engineering applications. Corequisite: 2245.

59A Data Structures
Vector algebra, tenses, courses, exception handling, variable storage, Newton's laws, iteration, equilibrium, principles of partition and file techniques. Application: 2245.

59D Dynamics

59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering

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59P Introduction to Electrical Engineering

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59P Introduction to Electrical Engineering

59P Introduction to Electrical Engineering
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
22M:37 Engineering Calculus III 4 s.h.
57:10 Dynamics 3 s.h.
57:11 Introduction to Electrical Science 3 s.h.
57:15 Materials Science 3 s.h.
Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
22M:38 Differential Equations for Engineers 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:16 Thermodynamics I 4 s.h.
Total 14 s.h.

Junior Year

First Semester
225:38 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.
57:19 Mechanics of Deformable Bodies 3 s.h.
57:23 Materials Science Design 3 s.h.
29:81 Intermediate Engineering Physics I 3 s.h.
59:91 Professional Seminar: Biomedical Engineering 0 s.h.
Total 16 s.h.

Second Semester
270:20 Mechanics of Fluids and Structural Mechanics 4 s.h.
27:22 Process Design II 3 s.h.
29:82 Intermediate Engineering Physics II 3 s.h.
27:100 Biomedical Engineering Physiology 3 s.h.
59:91 Professional Seminar: Biomedical Engineering 0 s.h.
Humanities or social science elective 3 s.h.
Total 17 s.h.

Senior Year

First Semester
51:85 Biomedical Engineering Design I 3 s.h.
Biomedical Engineering Electives 5 s.h.
Humanities or social science elective 4 s.h.
59:91 Professional Seminar: Biomedical Engineering 0 s.h.
Total 16 s.h.

Second Semester
51:86 Biomedical Engineering Design II 3 s.h.
Biomedical Engineering Electives 5 s.h.
Humanities or social science elective 3 s.h.
59:91 Professional Seminar: Biomedical Engineering 0 s.h.
Total 16 s.h.

51:91 Professional Seminar: Biomedical Engineering 6 s.h.
Total 15 s.h.

51:91 Professional Seminar: Biomedical Engineering 6 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the Colleges of Engineering. The biomedical engineering elective courses are listed below, along with preassigned values in semester hours of the amount of engineering science and of engineering design for each course. The values represent the approximate breakdown of the course content in the two curriculum areas of engineering science and design. Each student must select at least five of the elective courses listed below in combination so that the sum of the credits in engineering science from all the biomedical elective courses totals at least eight semester hours and, simultaneously, the sum of the design credits totals at least four semester hours. These minimums are imposed to ensure that each student satisfies curricular guidelines established by the national engineering accreditation agencies.

51:40 Biological Systems Analysis

(Eng. Sci. 2 s.h., Eng. Design 5 s.h.)
51:70 Biomedical Materials I

(Eng. Sci. 2 s.h., Eng. Design 1 s.h.)
51:80 Biomedical Measurement I

(Eng. Sci. 2 s.h., Eng. Design 1 s.h.)
51:82 Apprenticeship in Clinical Engineering

(Eng. Sci. 2 s.h., Eng. Design 1 s.h., Eng. Pre-Dipl 1 s.h.)
51:150 Cardiovascular Biomechanics

(Eng. Sci. 2 s.h., Eng. Design 5 s.h.)
51:153 Biomechanics

(Eng. Sci. 2 s.h., Eng. Design 5 s.h.)
51:170 Biomechanics Processes

(Eng. Sci. 2 s.h., Eng. Design 5 s.h.)
51:172 Polymers in Biomaterials 3 s.h.
Special Facilities and Laboratories

Biomechanics Laboratory
This laboratory is equipped to experimentally investigate various aspects of the biomechanics of the human head and spine.

Biomechanics Laboratory
This laboratory is equipped to test mechanical properties of biotissues and thin sectioning of hard tissues and prostheses for histology.

Hemodynamics Laboratory
The Hemodynamics Laboratory is equipped to study cardiovascular fluid dynamics, particularly flow past valve prostheses and flow in the human aorta.

Applied Mechanics Laboratory
This laboratory is equipped to study the biomechanics of small bore specimens under dynamic loading conditions.

Biomedical Image Processing and Computing Laboratory
This laboratory has an EDICOM image processing system which is used to digitize analogical slides, photographs, X-rays, and CAT scan images—with a result of over 800,000 pixels and can distinguish 256 colors.

Courses

51:86 Cooperative Education Training Assignment

Biomedical Engineering 3 s.h.

Biomedical engineering students pursuing the Cooperative Education Program register in this course during work assignment periods. Registration provides a period of participation in the program on the student’s part-time record. Prerequisite: 27:100. 1 or 2 times per year. 51:86

51:87 Biomedical Systems Analysis

Applications of principles of control theory and principles of dynamic human computer simulation techniques to study dynamic response of a biological system. Prerequisites: 72:104. 51:11

51:88 Biomechanics I

Prerequisites: compatibility characteristics, and performance requirements of materials for implants and bone and dural interfaces in the human body. Prerequisites: 4:14 and 51:19.

51:90 Biomedical Measurement

Describes development and utilization of contemporary electronic instrumentation for measuring biomedical variables and research interest. Prerequisite: 72:104. 51:18

51:92 Biomechanics in Clinical Engineering

(Eng. Sci. 2 s.h., Eng. Design 1 s.h.)
51:95 Biomedical Instrumentation

(Eng. Sci. 2 s.h., Eng. Design 1 s.h.)
51:98 Biomedical Engineering 3 s.h.
51:100 Biomedical Engineering 3 s.h.
51:120 Biomedical Engineering 3 s.h.
51:150 Cardiovascular Biomechanics 3 s.h.
51:153 Biomechanics 3 s.h.
51:170 Biomechanics Processes 3 s.h.
51:172 Polymers in Biomaterials 3 s.h.
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Biomechanics Laboratory
This laboratory is equipped to test mechanical properties of biotissues and thin sectioning of hard tissues and prostheses for histology.

Hemodynamics Laboratory
This laboratory is equipped to study cardiovascular fluid dynamics, particularly flow past valve prostheses and flow in the human aorta.
New dynamics past parentheses, flow through
explores, three-dimension studies of heat
transformation analysis of set vacuum, separation
development polymer, and environment
dependence.

31:015 Bioturbate Process 1 a.h.
Application of mathematics, heat, and mass
transfer to the study of bioturbate processes
analogs on human biology, examine fluid
mechanics of the system, the exchange in the
environment, regulation in ecosystems.

Prerequisites: 51:075, 51:095 and 72:154.

31:192 Aquitation Process 1 a.h.
Aim is evaluate the structure-property
relationships of metals, polymers, ceramics,
and composites and to manufacture samples.
Interactions between materials body and property
structure and the potential for the application
of statistical methods. Prerequisite: 51:195.

Chemical and Materials Engineering
Department Chair: Gregory R. Carmines
Faculty: professors Keith Bennett, James C. Odom,
professor emeritus Kim Kuykendall, associate professors Gregory R. Carmines, Arthur F. Vater
assistant professors Robert G. Dhillon, David W. Lumley, David G. Redpath
Degrees 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
converted or separated into useful products.
Chemical and materials engineers design,
develop, and engineer the complete process as
well as the equipment used in it. They choose
the proper raw materials and operate the manufaturing facilities efficiently, safely,
and economically. They are employed by
basic industries such as heavy chemicals,
petroleum, specialty chemicals, coal, and
solvents as well as consumer-oriented
industries such as plastics, food,
fertilizers, pharmaceutics, cosmetics,
paint, and paper. They also engage in research, process and product development, process and plant
design, actual production operation, and
cases. Many experienced engineers
become managers or administrators.

Courses which 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. Course
descriptions are provided in this section.

Undergraduate Program
The Bachelor of Science in engineering
degree program prepares the student for
work in design, supervision, development,
and sales. The curriculum includes extensive training in chemistry, a
sequence of mathematics courses, and the
computer 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

Fall Semester
2M3:37 Engineering Calculus III 4 s.h.
5M1:36 Dynamics 4 s.h.
5M1:11 Introduction to Electrical Science 3 s.h.
5M1:15 Materials Science 3 s.h.
5M1:17 Sciences or Social science elective 3 s.h.
Total 16 s.h.

Second Semester
2M3:38 Differential Equations for
Engineers 4 s.h.
5M1:25 Linear Systems Analysis 3 s.h.
5M1:25 Mechanics of Fluids and
Transfer Processes 4 s.h.
5M1:41 Process Calculations 3 s.h.
29:81 Intermediate Engineering
Physics I 3 s.h.
Total 17 s.h.

Junior Year

First Semester
4:131 Physical Chemistry I 3 s.h.
29:82 Intermediate Engineering
Physics II 3 s.h.
5M1:21 Principles of Design I 3 s.h.
5M1:42 Control and Energy
Transfer 4 s.h.
5M1:18 Principles of Electronic
Instrumentation 4 s.h.
5M1:91 Professional Seminar:
Chemical Engineering 0 s.h.
Total 17 s.h.

Second Semester
4:132 Physical Chemistry II 3 s.h.
29:84 Physical Measurements 3 s.h.
5M1:43 Chemical Engineering
Thermodynamics 3 s.h.
5M1:44 Mass Transfer Operations 3 s.h.
5M1:91 Professional Seminar:
Chemical Engineering 0 s.h.
Total 16 s.h.

Senior Year

First Semester
4:121 Organic Chemistry I 3 s.h.
5M1:45 Chemical Reaction Kinetics 3 s.h.
29:85 Economics and Compo in
Design 3 s.h.
5M1:47 Unit Operations Laboratory 2 s.h.
5M1:25 Materials Science or
Social science elective 3 s.h.
5M1:91 Professional Seminar:
Chemical Engineering 0 s.h.
Total 14 s.h.

Second Semester
4:122 Organic Chemistry II 3 s.h.
5M1:46 Organic Chemistry
Laboratory 3 s.h.
5M1:48 Unit Operations Laboratory 2 s.h.
5M1:86 Chemical Engineering
Process Design 3 s.h.
5M1:32 Humanities and Social
science elective 3 s.h.
5M1:91 Professional Seminar:
Chemical Engineering 0 s.h.
Total 17 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
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 is currently being carried out in
air pollution, catalysis, diffusion, flow
through porous media, membrane and
bio-separations, fine particles, reaction
kinetics, and transport phenomena. Many
research projects are funded by external
agencies such as National Science
Foundation, EPA, NASA, and private
industries. Some of these research areas are
described briefly below:

Air Pollution
The study of transport phenomena of
atmospheric processes including the
analytical and numerical modeling of
chemically reactive flows and combined
mass transfer systems is ongoing. This
research may help assess regional
pollution control and energy utilization
strategies.

Fine Particles
A group of professors and graduate
students is engaged in research on
materials in finely divided form such as
dust, powders, and aerosols. The goals of
this group are to describe
mathematically the particle size and
shape and then to relate these to the
surface of the particles and their behavior.
Potential applications include
atmospheric pollution phenomena.
chemical reactions, crushing and grinding, crystallization, grain dust explosions, storage and flow of granular solids, and analysis of machine wear.

Flow Through Porous Media
Knudsen flow and surface diffusion through various microscopical media are being studied. Practical applications are in: gas separation, catalysis, and distillation.

Kinetics, Catalysis, and Reaction Engineering
Hybrid multiphase catalysts are being investigated which combine the advantages of homogeneous and heterogeneous catalysts. Other topics of current interest include fluid-solid reactions, transport in porous media, diffusion and reaction in arbitrary shaped particles, design of novel systems for simultaneous reaction and separation, and parameter estimation by dynamic response of heterogeneous reactors.

Separation Processes
The purpose of this research is to develop, design, and optimize separation processes. Particular emphasis is placed on methods that can achieve separations when conventional methods fail. Current research is focused on novel membrane, electrophoresis, and chromatography processes for use in biotechnology and chemical industries.

Master of Science
A thesis and a minimum of 30 semester hours of coursework must be completed, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in Summer 6 and 8 quarters as residence credit may not exceed eight semester hours. However, six semester hours may be completed in residence at another recognized graduate college or by Correspondence Study at The University of Iowa.

The minimum coursework requirement is 24 semester hours (eight courses), and the remaining number of 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 within one year, many students spend three or 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 is normally expected to have completed three academic years of residence, or two years if he or she already holds a recognized master's degree. In any case, the degree candidate is required to have completed at least 72 semester hours of graduate credit.

A Ph.D. candidate is expected to maintain a minimum grade-point average of 3.5. All doctoral students are required to pass a written and oral comprehensive examination prior to candidacy for the degree. The Ph.D. comprehensive examination may be a special design project, or at the discretion of the examining committee, it may consist of a written examination covering graduate coursework. These examinations are administered by members of the examining committee. The examinations may be repeated. The rules for the comprehensive examination may be found in the manual of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program.

Graduate Admission Requirements
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 from foreign universities are also accepted, depending on an 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, the minimum grade-point average is 3.0 based on 12 or more semester hours of graduate work or 2.7 based on the entire record of graduate work if the student has less than 12 semester hours of graduate work.

A final oral examination may be granted if the above requirements are not fulfilled and approval is obtained from the chair of the chemical and materials engineering program. A grade-point average of at least 2.3 is required for conditional admission. Also, applicants should take the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) Aptitude Test, and scores of 500 or above should be submitted with the application.

Graduate courses in chemical and materials engineering are designated 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 a student needs to take certain undergraduate courses in order to allow him or her to perform in the graduate courses with minimum difficulty. Since these undergraduate courses are in the nature of prerequisite courses, they do not carry credit toward a graduate degree.

Financial Assistance
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 is equipped with optical microscopes and facilities for metallurgical preparation including a darkroom. Mechanical tensile testing instruments and hardness testing machines are also available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallurgy specimen kits, dislocation in LiF kits, and crystallography packages.

Required Course Laboratories
Unit Operations Laboratory
This is primarily instructional laboratory for senior undergraduate students and involves experimentation in two important phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment such as distillation column interfaced with a microprocessor, film evaporator, shell-and-tube heat exchanger, jacketed kettle, packed column for gas absorption, plate- and-frame filter press, agitated extractor, and a cabinet dryer. Other equipment includes stirred-tank reactors, packed-bed reactor, centrifugal pump, gas chromatograph, refractometer, mixing unit, and a variety of instrumentation for measuring flow, pressure, temperature, and weight, etc. A small shop is also available to students for use under the supervision of a technician.

Chemical Engineering Laboratory
In this laboratory is equipment for measuring and controlling process variables such as flow, level, flow, and temperature. Equipment includes an analog computer, two chart recorders, two microcomputers, and pneumatic process controls. The laboratory also makes use of remote computer terminals for simulating control systems.

Graduate Facilities and Laboratories
Reaction Engineering Laboratory
A laboratory for graduate research in the area of heterogeneous and homogeneous catalysis, gas-solid contact processes, fluid flow, and multiphase reactors. At present the laboratory contains a complete Berty reactor unit suitable for catalytic studies at high temperature and pressures. It is
How long used for an investigation of sulfur dioxide oxidation on vanadium catalysts. A chemical unit that is dynamic in nature is being used for a study of the catalysis of large volume processes. It contains a high-temperature tubular furnace and a continuous flow with digital display. Other equipment includes a membrane reactor unit for heterogeneous catalysis and a stirrer reactor unit designed for parameter estimation from its dynamic response.

Powders and Particulates Laboratory
The laboratory is equipped with a particle image analyzing system; sampling devices; devices for characterizing bulk properties of powders; various mixers, grinders, and sizing equipment; optical microscopes; and mounting and polishing equipment. Facilities are available for atomizing, crystallization, particle-particle separations; fluidized bed; slurry flow; solid flow; and extraction studies. In addition there is access to scanning and transmission electron microscopes. Quantam 720 system, electron microscope, computer center, and specialized engineering and chemistry library facilities and laboratories.

Separation Processes Laboratory
Members of the Iowa Separation Processes Group conduct theoretical and experimental studies in the design and development of novel gas and liquid processes. These studies include various separation processes: gas separations, separation of oil and gas streams, liquid-liquid separations, vapor-liquid separations, and other separation processes. New theoretical and experimental studies in these areas are ongoing.

Courses
Special Courses
5258 Computer Training Assignments: Chemical Engineering
Chemical engineering students participating in the Cooperative Education Program are required to attend computer training as a part of their course work. During the assignment period, registration provides access to the University's computer facilities, a student's permanent record card, and University of Iowa student id. The course is 3 credit hours.

5261 Process Equations
Solutions of some problems using material and energy balances and techniques. Design of equipment and models for energy balances, and reactor systems. Problem set.

5262 Chemical Engineering Thermodynamics
Applications of characteristics problems in various areas of engineering. Properties, state properties, and engineering equilibrium. Solutions and examples. Problem set.

5267 Operations Laboratory I
Laboratory investigation of transport phenomena and chemical engineering unit operations. Orientation and training exercises, techniques, report writing, computer usage, and laboratory safety. Problem set.

5268 Data Analysis I
Open-end laboratory studies on transport phenomena, chemical engineering unit operations, process control, and reactor kinetics. Emphasis on present design, construction, development, and evaluation. Problem set.

5269 Water Pollution Control Laboratory
Introduction to basic concepts and principles of chemical engineering processes. Laboratory studies on cleaning processes for chemical engineering plants and processes. Problem set.

5270 Individual Investigations: Chemical Engineering
An individual project, independent research work. Undergraduate students should complete this laboratory course with a research project during their senior year. Problem set.

5272 Mass Transfer
Fundamental principles of mass transfer processes. Applications to distillation, evaporation, absorption, filtration, and electrochemical processes. Problem set.

5273 Equilibrium State Operations
Unified theories and methodologies of equilibrium processes. Applications to distillation, evaporation, absorption, filtration, and electrochemical processes. Problem set.

5276 Dynamic Mass Transfer

5277 Microseparation Processes
Theory and application of multi-stage processes for separation of mixtures of solids and liquids on industrial scale. Problem set.

5278 Reactor Design Analysis
5281 Chemical Reaction Kinetics
Application of chemical reaction rates to design of chemical reaction systems. Reaction modeling, reaction rate balances, kinetic analysis. Problem set.

5283 Advanced Chemical Reaction Kinetics
Advanced topics in chemical reaction science. Reaction mechanisms, catalytic chemistry, reaction engineering. Problem set.

5284 Chemical Engineering Thermodynamics
Introduction to thermodynamics and heat transfer processes. Pathways and analysis of chemical and physical properties. Problem set.

5285 Advanced Chemical Reactor Design

5287 Process Dynamics

5288 Chemical Engineering Design
Process design problems of plant layout, pretreatment, and reactor systems. Problem set.

5289 Chemical Engineering Design
Process design problems of plant layout, reactor design, and reactor systems. Problem set.
Graduate Seminars, Advanced Topics, and Research

52.180 Bedding in Chemistry of Metals Engineering
- For graduate students with iron-mining major who wish credit in undergraduate chemical engineering courses. May be repeated. Prerequisites: undergraduate fulfillment of course requirements; consent of instructor.

52.185 Seminar in Chemical and Materials Engineering
- Prerequisites for most courses. Recent advances and major research in chemical and materials engineering by guest lecturers, faculty, and students. Permanent standing.

52.190 Controversy in Chemical and Materials Engineering
- New topics of study not formally offered by chemical and materials engineering on a permanent basis. Offerings depend on faculty interest and student interest.

52.150 Individual Investigation: Chemical and Materials Engineering
- Individual projects for chemical and materials engineering graduate students such as a laboratory study, engineering design projects, analyses of technological data, or other projects in the area of materials science and engineering.

52.343 Three-Research: Chemical and Materials Engineering
- Prerequisites: graduate standing and consent of faculty advisor.

52.386 Research: Chemical and Materials Engineering
- A four-credit research course for students in the Ph.D. degree in chemical and materials engineering. Prerequisite: Consent of advisor.

Civil and Environmental Engineering

Department Chair: Jonathan Kaye

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 such areas of specialization as structural and seismic design, environmental engineering, hydrological engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester

12M:37 Engineering Calculus III
57:10 Dynamics
57:11 Introduction to Electrical Science
57:15 Mechanical Science
57:16 Thermodynamics I
Total: 17 s.h.

Second Semester

12M:38 Differential Equations for Engineers
57:12 Linear Systems Analysis
57:19 Mechanics of Deformable Bodies
57:20 Mechanics of Fluids and Transfer Processes
29:81 Intermediate Engineering Physics I
Total: 17 s.h.

Junior Year

First Semester

29:82 Intermediate Engineering Physics II
57:21 Principles of Design I
29:95 Probability and Statistics for Engineers
53:35 Sci Mechanics
53:31 Structural Analysis I
53:91 Professional Seminar: Civil Engineering
Total: 16 s.h.

Second Semester

57:14 Principles of Electronic Instrumentation
57:22 Principles of Data II
57:35 Design of Structural Units
57:31 Principles of Heat Transfer
57:18 Principles of Hydrology
57:32 Elements of Surveying
53:91 Professional Seminar: Civil Engineering
Humanities and social science electives
Total: 18 s.h.

Senior Year

First Semester

53:36 Reinforced Concrete Structures
53:63 Transportation Engineering
53:79 Hydraulic Design
53:91 Professional Seminar: Civil Engineering
53:150 Principles of Environmental Engineering
Humanities and social science electives
Total: 15 s.h.

Second Semester

53:64 Transportation Systems Design
53:91 Professional Seminar: Civil Engineering
Technical electives
Humanities and social science electives
Total: 15 s.h.

Graduate Program
- The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Graduate Program in civil and environmental engineering is available at the M.S. and Ph.D. levels. It is designed to prepare students for professional careers and further study. The principal areas of concentration are environmental engineering and science: hydraulics and water resources; structures; mechanics and materials, and transportation.
Environmental Engineering and Science

The environmental engineering curriculum has two basic stems, one engineering and the other applied science. The curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulic Research, the Institute of Agricultural Medicine and Environmental Health, and the College of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one of three areas: water quality, quality of life, and solid wastes management.

Hydraulics and Water Resources

The hydraulics and water resources curricula are associated with the Civil and Environmental Engineering Laboratory, whose faculty members are renowned. The senior staff members of the institute are professors in the program and devote about half their time to teaching. The institute offers unique opportunities for its students to participate actively in research, analysis, and design aspects of real world problems. Considerable attention is given to the use of digital computers in mathematical modeling and in the acquisition and processing of data. The water resources curriculum also has ties to the Institute of Economic Research, the Institute of Urban and Regional Research, and the colleges of Business, Law, and Liberal Arts.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula are associated with the Civil and Environmental Engineering Laboratory, whose faculty members are renowned. The senior staff members of the institute are professors in the program and devote about half their time to teaching. The institute offers unique opportunities for its students to participate actively in research, analysis, and design aspects of real world problems. Considerable attention is given to the use of digital computers in mathematical modeling and in the acquisition and processing of data. The water resources curriculum also has ties to the Institute of Economic Research, the Institute of Urban and Regional Research, and the colleges of Business, Law, and Liberal Arts.

Transportation

The transportation curricula include work in planning, design, construction, and operation of highways and airports. Courses and facilities. A cooperative relationship exists with the Graduate Program in urban transportation offered by the Center for Transportation Studies (see "Transportation Studies").

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the areas or subject of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without a thesis, must include a minimum of 30 semester hours credit, with not more than six semester hours of credit allowed for thesis. An additional six semester hours are allowed for the nonthesis environmental engineering curriculum.

Each student, with the approval of his or her adviser, develops a plan of study which satisfies special requirements of the curriculum chosen by the student. All candidates for the degree are expected to have a minimum grade-point average of 3.0 and are required to pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements as to semester hours of course work vary somewhat among the various areas of specialty. The candidate will normally 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 which contributes to knowledge in the field. In some specialty areas, qualifying examination is required during the second semester for students who have not earned an M.S. in one of the University of Iowa graduate programs in engineering.

All doctoral students are required to pass a written and oral comprehensive examination prior to formal admission to candidacy for the degree. The examination is normally taken when substantially all of the student's course work has been completed.

The program culminates in a final examination, in which the candidate must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade-point average of 3.2 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences (see the "Division of Mathematical Sciences" section in "Liberal Arts").

Graduate Admission Requirements

Each curriculum of the program is quite diverse, and 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; initially, 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 eligibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College").

Financial Assistance

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships. Selection of recipients usually is based on scholastic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction Engineering Core

57.2 Principles of Design I

In this course extensive use is made of the Computer Aided Engineering Laboratory which is described under College Facilities.

57.30 Soil Mechanics

The soils laboratory is equipped for determining the characteristics, stress-strain properties, and strength of soils.

57.150 Principles of Environmental Engineering

The Environmental Laboratory and University Water Treatment Plant are used for demonstrations of unit operations and processes of water treatment and concepts in environmental chemistry and microbiology.

57.153 Environmental Chemistry Laboratory

The laboratory for environmental chemistry is a part of the Environmental Chemistry Laboratory. Standard water and wastewater quality tests are conducted and bench scale unit processes are operated and evaluated.

57.155 Limnology

The laboratory for limnology is a part of the Chemistry Laboratory. Typical aquatic organisms are studied in the laboratory and several field exercises are conducted on streams and lakes in the area.
Graduate Facilities and Laboratories
Environmental Engineering and Science Laboratories
Research in environmental engineering is conducted in the department's Phys. F. Morgan Sanitary Engineering Research Laboratory at the Iowa City Municipal Wastewater Treatment Plant and in the Environmental Laboratory in the University Water Treatement Plant.

The Morgan laboratory is devoted to research activities in the wastewater treatment area. It includes a modern, well-equipped chemistry laboratory, a 10,000 gallon detention tank, space for bench and pilot studies of wastewater treatment.

The Environmental 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 entire 4 million gallons-per-day water plant is especially designed to enable the isolation of treatment operations for study without undue interference with the production and supply of treated water to the University.

Hydraulics and Water Resources Laboratories
The teaching and research functions of the department are closely connected with the research and consulting activities of the Institute of Hydraulic Research.

The institute houses some of the most modern research facilities in the world, including a 300-foot towing tank, several hydraulic research channels, a wide variety of flumes, pumps, and other equipment used for investigation of ice phenomena, an environmental hydraulic flume for modeling of atmospheric flows, a refrigerated water tunnel and a computer controlled data handling system.

Structures, Mechanics, and Materials Laboratories
These laboratories include a structural testing laboratory, a soil laboratory, a plasticity research laboratory, and a design optimization laboratory.

The structures, soils, and plasticity labs are equipped for the determination of physical- and mechanical-properties of materials, such as concrete, soils, plastics, and biomaterials. Equipment includes universal test machines, a creep machine, a prestressing bed and frame, and a computer controlled M.I.'s axial-torsional test system. The design optimization lab includes two microcomputers and three graphic terminals connected to a PIMAC 790 computer.

Courses
Special Courses
SE 501 Cooperative Education Training Assignment—Civil Engineering 2 a.h.
Civil engineering students participating in a Cooperative Education Program enroll in the course during each assignment period. Responsibility for student's performance rests solely with the student's employer. Credit is earned for each semester completed.

SE 506 Elements of Safety Engineering 3 a.h.
Engineering surveying techniques, methods, and calculations. Prerequisite: SE 271.

SE 301 Professional Service—Civil Engineering 3 a.h.
Professional responsibilities of civil engineer in practice through lectures and discussions by guest speakers, real-time, and self-directed projects. May be repeated. Requires prior arrangement with civil engineering unions and services. Prerequisite: junior standing.

SE 132 Investigations of Geotechnical Engineering 1 m.h.
In-depth study of civil engineering geotechnical structure students such as laboratory study, engineering design program, emphasis on soil physics studies, foundation geology, soils, processes, soils and fundamentals of soil physics. Prerequisite: SE 190.

SE 510 Computer Aided Design 3 a.h.
Analysis of CAD tools, techniques for 3-dimensional design data management, introduction to computer-aided, development of personal computer drafting system, geometric modeling, finite surface extrapolation, graphic hardware and, 3-D CAD systems. Prerequisite: Senior standing. Same as SE 510.

SE 311 Geotechnical Controls 3 a.h.
Development of geotechnical projects for functional applications, numerical differentiation and integration, solution of degrees and differential equations, numerical analysis, and integration. Prerequisites: SE 220 and SE 301. Same as SE 411.

SE 122 Engineering Analysis 3 a.h.
An introduction to the various mathematical techniques used in solving physical and environmental problems, special emphasis on numerical methods. Prerequisite: MATH 183. Same as SE 611.

SE 310 Mathematical Models in Engineering 3 a.h.
Analysis of approximation methods and algorithms for solving differential equations of engineering problems. Prerequisite: SE 208. Same as SE 510.

SE 234 Environmental Planning and Assessment 3 a.h.
Major techniques relating to the planning and assessment of both human health and the foods upon which we depend for sustenance. Emphasis placed upon contemporary regulatory efforts toward outdoor and indoor pollutants. Prerequisite: SE 350. Same as SE 434.

SE 202 Advanced Engineering Hydraulics 3 a.h.
Modeling of engineering systems by mathematical equations, mathematical simulation techniques for differentiators and integration of mathematical solutions, experimental techniques, computer simulation, errors in simulation, and error in solution. Prerequisite: SE 310. Same as SE 510.

SE 222 Mathematical Methods in Engineering 3 a.h.
Analysis, approximation, numerical methods for solving physical equations of engineering problems. Prerequisite: SE 310. Same as SE 511.

Structures, Mechanics, and Materials
SE 320 Soil Mechanics 3 a.h.
Engineering properties of soil: soil improvement, bearing capacity, foundation design, laboratory testing. Prerequisite: SE 271.

SE 315 Structural Analysis I 3 a.h.
Analysis of trusses in beams, frames, and shells. Introduction to the finite element method for classical and nonclassical structures. Emphasis on principles of mechanics, numerical methods, and finite elements. Prerequisite: MATH 183.

SE 325 Design of Steel Structures 3 a.h.
Course examines the structural design of steel and light metal frames, design of steel beams and columns, bracing. Design of reinforced concrete. Prerequisite: SE 271.

SE 326 Reinforced Concrete Structures 3 a.h.
Fundamental analysis and design of reinforced concrete structures and elements. Review, design, bond, tension, tension, sizing, bars, slabs, columns, requirements, reinforcement, columns and beams. Prerequisite: SE 271.

SE 310 Structural Analysis 3 a.h.
Classical and matrix formvar solution and methods, solution methods in structural mechanics, solution. Prerequisite: SE 271.

SE 314 Finite Element Techniques in Engineering 3 a.h.

SE 212 Computer Methods in Structural Analysis 3 a.h.

SE 315 Computer Methods in Structural Analysis 3 a.h.

SE 316 Computer Methods in Structural Analysis 3 a.h.
Graduate Program

Electrical and computer engineering offers curriculum leading to the Master of Science and Doctor of Philosophy degrees. Thesis and non-thesis M.S. programs are available, and either may precede Ph.D. advisement. Excellence in scholarship and research is emphasized through close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Each student selects an advisor, and, with the advisor, plans an individual program, bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interaction, often with other departments, exists both within and outside the college, especially internal medicine, radiology, physics, computer science, and biomedical engineering. The principle 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 next.

Waves and Materials

Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Enright Building and Van Allen Hall. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical as well as practical nature. These topics include plasma confinement and stability, and nonlinear wave phenomena such as solitons and shocks. A plasma physics laboratory is available to support this activity. An electro-optic laser laboratory and an ultrasonic facility are used to conduct graduate research in the areas of optical/electrical, especially acousto-optics, surface acoustic waves, and nonlinear wave phenomena in ultrasonic physics. Micromechronics laboratory is a valuable adjunct to this activity. Topics of interest include acousto-optic interactions, 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 research include fault-tolerant computing, distributed systems, coding theory and its use for data security, VLSI design, and data-flow architecture. This work is supported by the availability of a computer network laboratory and by microcomputer facilities and VLSI design software. Current projects include visualization of ultra-reliable computing systems, design of highly survivable computer networks, fault diagnosis in multiprocessor systems, and design of easily testable very large scale integrated circuits. Close ties with the Department of Computer Science are maintained.

Signal and Image-Processing

Cardiovascular signal and image processing, signal processing associated with speech and hearing, estimation theory, and adaptive signal processing are currently active areas. Collaborative efforts involve biomedical engineering, physics, and the College of Medicine. A digital signal processing laboratory, and a new cardiovascular image processing laboratory, the latter located at the cardiovascular center in the University Health Center, are available to support this research. Recent projects include image signal processing, detection of cardiac motion, recognition and spectral analysis of speech, detection of R, E. S., and E. S. in victims of near and other, and development of hardware and software techniques in the acquisition and processing of images in various cardiovascular settings.

Statistical and Computer-Based Control Systems

Current research emphasizes optimal control, learning and adaptive control, self-learning systems, and feedback systems, and robotics. Work is also being done in estimation, identification, and control for linear dynamic systems. The computer and control systems research laboratory supports this effort. These efforts include applications of stochastic processes to problems in control and communication systems such as spectral estimation, identification, and control for stochastic dynamical systems.

Master of Science

There are two M.S. degree options, an M.S. with thesis and an M.S. without thesis. The thesis candidate must complete 30 semester hours of course work including at least 12 semester hours in electrical and computer engineering courses. The thesis option requires 30 semester hours of course credit with a minimum of 12 semester hours in electrical and computer engineering courses. The M.S. non-thesis requirement do not include courses required for electrical engineering undergraduates. With thesis, up to eight semester hours of the 30 semester hours may be taken as research credit. Without thesis, at least three semester hours of 55/198 Individual Investigations: Electrical and Computer Engineering are required in addition to the 12 semester hours in electrical and computer engineering. This independent study is to be a special project completed under the supervision of the student's advisor.

The candidate for the master's degree in electrical and computer engineering must also successfully complete a final examination which is conducted by a committee of at least three faculty members, of which the advisor is chair. One part of the final examination shall consist of an oral defense of the thesis, for these candidates, or of the materials in 55/198 Individual Investigations: Electrical and Computer Engineering, for nonthesis candidates. At the time of graduation, the candidate for the Master's degree must have acquired a cumulative grade point average of 3.00 or higher.

Doctor of Philosophy

Requirements are

- Selection of a program advisor and filing of a tentative plan of study with the program during the first year.
- At least 72 semester hours of credit in a program acceptable to the advisor and approved by the graduate committee, with at least 45 semester hours of credit earned in formal courses, including 30 semester hours in Electrical and Computer Engineering.
- Successful completion of the Ph.D. qualifying examination;
- Successful completion of the Ph.D. comprehensive examination;
- Successful completion of a research proposal;
- Successful completion of a final oral defense of the thesis; and
- A cumulative grade point average of 3.25 or higher.

The Ph.D. qualifier examination, taken just after the student has completed 36 semester hours of graduate work, is an 8-hour examination and requires the student to solve problems from our out of five specified areas plus one individual area. The qualifier examination has two purposes: to eliminate at an early point students who are not qualified to pursue Ph.D. degrees, and to enforce minimal standards or provide the student's overall plan of study. After this examination is passed, the student's advisor and Ph.D. committee have primary responsibility for the design of the student's plan of study. The qualifier examination is given twice a year, and the student has two chances to pass it. A comprehensive examination includes, or a dissertation proposal follows within three calendar years of the qualifier, and the program ends with a final oral thesis defense.
Graduate Admission Requirements

The normal requirement for admission to the graduate program is a grade-point average of 2.7 grade-point average on all courses in electrical and computer engineering mathematics, and physics for M.S. students, 3.0 for Ph.D. students. A U.S. student with a grade-point average less than 2.7 but better than 2.5 in courses in electrical and computer engineering mathematics, and physics may be admitted in such cases, additional course work without graduate credit may be required. Each application is reviewed on an individual basis. Extenuating circumstances may result in exceptions from the normal standards.

Financial Aid Assistance

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

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 instruction is the opportunity in providing the student of the college with their first experience with engineering laboratories. The laboratories are equipped with oscilloscopes, signal generators, analog and digital measuring 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, microcomputers, and construction of hybrid solid state devices.

Graduate Facilities and Laboratories

The department has a microcomputer system in the computer engineering laboratory which contains two PDP 11/34 microcomputers. The two with a multi-user operating system and the other is a single-user facility. Anomaly equipment in this laboratory consists of a 650 MHz disk, a 12-bit microcomputer diskette, a magnetic tape drive, 16 bit asynchronous communications ports, analog to digital and digital to analog converters, a RAM/TEK color image display system, a TV camera, video digitizer, and digitizer interface.

A second departmental microcomputer system consists of two VAX 11/780 microcomputers, each equipped with a large disk drive and floating point accelerator, and link together with Ethernet.

Courses

Special Courses

Using computer Engineering Training Environment: Qualitative Engineering

Electrical engineering students participating in the Engineering Program department's 1979 summer assignment program, registration provides a survey of participants in the program on the student's employment record card. Prerequisite: volunteer at the Engineering Program for graduate students. Available in June. Facilities: Teaching Laboratory.

Introduction to Electrical Engineering I

Several design problems in electrical engineering with emphasis on some statutes and rules of electrical engineering and applications. Designed for freshmen. Six credits. (3-1-2-1.) Facilities: Teaching Laboratory.

Principles of Electrical Engineering I

Several design problems in electrical engineering with emphasis on some statutes and rules of electrical engineering and applications. Designed for freshmen. Six credits. (3-1-2-1.) Facilities: Teaching Laboratory.

Principles of Electrical Engineering II

Lead design problems in electrical engineering with emphasis on some statutes and rules of electrical engineering and applications. Designed for freshmen. Six credits. (3-1-2-1.) Facilities: Teaching Laboratory.

Principles of Electrical Engineering III

Principles of Electrical Engineering III: Laboratory Application of Conductors. Requires demonstration of the computer project and a formal engineering report. Coursework: S.583. Prerequisite: permission.

Professional Seminar: Electrical Engineering

Professional aspects of electrical engineering, particularly through interviews and discussions guest speakers field trips, tours, and panel discussions on topics of current interest. May be repeated. Credit granted to engineering juniors and seniors are required to attend in their third year of one of the year. Prerequisite: permission.

Selected Investigations: Electrical Engineering

An individual project to electrical engineering students. Students will identify a research opportunity in electrical engineering design project, gather on a limited amount of information, and prepare a report under the supervision of an advisory committee. Credit may be used as a supervised study.

Digital Systems and Computers

Introduction to Computers in Electrical Engineering

Introduction to the digital domain. Fundamentals of digital computer organization and machine language to digital programming, assembly language programming, and computer graphics. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to Software Design

Introduction to major languages and principles of computer program design. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to Microprocessors

Introduction to microprocessors, microcomputers, and programming techniques. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to Digital Design

Introduction to digital design and digital electronics. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to VLSI Design

Introduction to VLSI design and digital electronics. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to Software Design

Introduction to major languages and principles of computer program design. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to VLSI Design

Introduction to VLSI design and digital electronics. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to Microprocessors

Introduction to microprocessors, microcomputers, and programming techniques. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

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Introduction to major languages and principles of computer program design. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to VLSI Design

Introduction to VLSI design and digital electronics. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.

Introduction to Microprocessors

Introduction to microprocessors, microcomputers, and programming techniques. Credit granted only to students following in Computer Science. Prerequisite: S.574 and prerequisite standing.
Communications
6/5 Communication Systems
3.0h
Understand digital signal representation, processing with linear systems and filters, amplifiers, frequency and baud rate limitations, performance in the presence of noise, digital communication, Protocols: 259:19 and 37.

5/10 Communication Theory
3.0h
Digital communication, modulation and demodulation; carrier, signal and noise; statistical decision theory; error correction and correction codes, coding for efficient signal transmission, modulation and transmission technology, the phase-locked loop. Prerequisites: ECE 045-102.

5/10 Introduction to Information and Communication Theory
3.0h
Quantitative measures of information; discrete and continuous sources; source encoding; error detecting, correcting codes, discrete and continuous channels; state and convolutional codes. Prerequisites: 55.50 and 225:31.

Controls
5/4 Control Systems
3.0h
Introduction to linear feedback control systems; basic controls; time and frequency domain analysis, various aspects of control systems and stability; state-space methods. Prerequisites: 54.55 and 55.51.

5/5 Control Theory
3.0h
Feedback concepts, system stability, and computer-aided design of control systems. Prerequisites: 54.55 and 55.51.

5/5 Advanced Control Theory
3.0h
Nonlinear control stability, optimization techniques, numerical methods; applications to automatic control systems. Prerequisites: 54.55 and 55.51.

5/5 Random Process in Control and Systems
3.0h
Basic concepts of probability and random variables; linear systems and random inputs, Gaussian processes, random process analysis, examples of random processes in linear control systems, mean square stability, random signals, applications to system analysis. Prerequisites: 54.55 and 55.51.

5/5 Computer-Based Control Systems
3.0h
Introduction to the design of digital control systems, application of new and microprocessors in control systems, programming for real-time digital control; examples of optimal and adaptive control; filtering and parameter identification. Prerequisites: 55.52 and 55.51.

5/5-6 Electrical Energy Conversion: Power Systems
3.0h
Electrical energy conversion processes: power circuits, static current machines, theory and application; contemporary current machines; inverter and rectifier, electrical energy conversion processes: station, system, and installations, applied principles of design and manufacturing. Prerequisites: 55.51 and 55.52.

5/5 Power System Analysis
3.0h
All functional aspects of electric power systems, reliability, stability, and utility system operations, steady-state and dynamic studies, economic operation. Synthesis of all components of electric power systems. Prerequisites: 55.51 and 57.10.

5/5-6 Optimal Control
3.0h
Theory of optimal control, extrema of functional systems and sufficient conditions for an optimal control, side constraints, and boundary value problems. Prerequisites: 54.118 and 57.10.

5/5/6 Stochastic Control Systems
3.0h
Optimal controller design for Markov chains, state estimation, optimal control for systems with imperfect state information, optimal control with model restriction, separation of estimation and control, dual control, stochastic control, analysis of systems with unknown parameters. Prerequisites: 55.190 and 17.153.

Waves and Materials
5/3 Electromagnetic Theory
3.0h
Waves and materials, Maxwell's equations, with propagation, application including radiation, transmission lines and circuit theory. Prerequisites: 55.190 and 259:19.

5/3-5 Electromagnetic Materials and Devices
3.0h
Introduction to transmission of electrical properties, permittivity, depolarization, polarizability, dielectric losses, ferromagnetic response, permeability, more. Prerequisites: 55.190 and 55.191.

5/3-5 Statical Electromagnetics
3.0h
Static and time varying fields, Maxwell's equations, theory and applications. Prerequisites: 55.190.

5/3-5 Linear and Nonlinear Waves
3.0h
Introduction to waves in physics: wave properties of waves, sound, surface, mechanical, water, and electromagnetic waves, non-linear waves in gases and liquids. Prerequisite: senior standing.

5/3-5 Static State Physical Principles
3.0h
Physics of wave-state electrical, electronic, and electromagnetic modes; light, sound, particle, tensor light, and sound, light; wave, aperture student and instructor. Prerequisites: 55.190 and 55.191.

5/3-5 Modern Wave Optics
3.0h
Laws, coherence, plane waves, angular spectrums, diffraction, holography. Prerequisites: 55.190 or 55.191.

5/3-5 Electro Optics
3.0h
Lenses, refraction, reflection, materials and devices, solid state, advanced Topics, electrical, Prerequisites: 55.190.

Graduate Seminar, Advanced Topics, and Research
5/5-6 Readings, Ph.D. and Computer Engineering
3.0h
Readings: graduate students with co-teaching majors and minors in electrical and computer engineering courses. May be used for individual study and independent research leading to a thesis. Prerequisites: 54.55 and 55.51.

5/5-6 Graduate Seminar and Computer Engineering
3.0h
Research and advanced courses in electrical and computer engineering, and research in electrical and computer engineering, by geographers, faculty, and students. Prerequisites: 54.55 and 55.51.

5/6 Contemporary Topics in Electrical and Computer Engineering
3.0h
Present topics in electrical and computer engineering for continuing students. Offerings based on student and faculty interest. Prerequisites: 54.55 and 55.51.

5/5-6 Special Investigational Electrical and Computer Engineering
3.0h
Special topics in electrical and computer engineering: master's research and doctoral research in electrical and computer engineering. Prerequisites: 54.55 and 55.51.

5/6 Research, Electrical Engineering, M.S. Thesis
3.0h
Research and advanced investigation of a topic approved for credit only for the Master of Science degree in electrical and computer engineering. Prerequisites: graduate standing and approval of faculty advisor.

5/6 Seminar, Physics of the Laboratory
3.0h
Discussion of current research. Prerequisite: consent of instructor.

5/5/6 Advanced Topics in Electrical and Computer Engineering
3.0h
Advanced topics in current literature in electrical and computer engineering. Prerequisites: consent of instructor.

5/5/6 Advanced Topics in Electrical and Computer Engineering, Ph.D. Thesis
3.0h
Advanced topics in current literature in electrical and computer engineering. Prerequisites: consent of advisor.

Joint Program with Urban and Regional Planning
A cooperative program between Engineering and Urban and Regional Planning is available for students who are interested in multidisciplinary positions in the public sector. Those positions would usually require a blend of civil and industrial engineering and policy analyst courses. Examples of positions for which a background of this type would be advantageous are public works directors and their staffs, transportation engineers, and the staffs of public utilities. For more information see "Urban and Regional Planning" in the "Libera Arts" section of the Catalog.
Industrial and Management Engineering
Program chair: J. H. Buck
Faculty professors: J. H. Buck, J. M. Urruchuevera, J. R. Simon
Graduate assistant professor: P. P. Biederman
Graduate assistant professor: M. A. Avalos, C. L. Bienert
Associate professor: E. M. Viola
Graduate assistant professor: T. K. Mahoney
Graduate teaching assistants: I. A. Muller, R. Litzenberg, G. R. Schuler

Industrial and management engineering is concerned with the analysis, design, and implementation of systems involving the optimal use of resources—human, material, energy, information, and capital. The systems involved may range from small subsystems to extremely large systems, in order to accomplish these varied activities, the industrial and management engineer is skilled in mathematics, physics sciences, management, and human relations, as well as in computer systems, economics, optimization, human behavior, and systems analysis and design. Both the undergraduate program in industrial engineering and the graduate program in industrial and management engineering are designed to provide courses in these areas, while offering the student an opportunity to specialize in an area of choice.

The industrial and management engineer has many opportunities for employment and service in industrial, governmental, research, and public service organizations. Employment opportunities are found in all industries engaged in the engineering field. The industrial and management engineer may hold a staff position as advisor to management or be in a line unit participating directly in management decisions. Representative job titles include industrial engineer, systems analyst or engineer, operations research analyst, internal consultant, human factors engineer, supervisor, or manager. The industrial and management engineers may be employed by a manufacturing firm, a government agency, or by a scientific organization such as an airline, bank, or hospital.

Undergraduate Program
The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in management science, production, operations research, quality control, human factors, and information systems.

Curriculum
Sophomore Year
First Semester
57.15 Introduction to Electrical Science 3 s.h.
57.16 Thermodynamics 3 s.h.
57.17 Materials Science 3 s.h.
57.18 Dynamics 3 s.h.
Total 15 s.h.
Second Semester
22M.38 Differential Equations for Engineers 3 s.h.
57.22 Principles of Design II 3 s.h.
57.21 Principles of Design I 3 s.h.
Humanities or social science elective 3 s.h.
Total 15 s.h.

Junior Year
First Semester
22S.39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
29.82 Intermediate Engineering Physics II 3 s.h.
57.20 Mechanics of Fluids and Transfer Processes 3 s.h.
57.21 Principles of Design I 3 s.h.
Humanities or social science elective 3 s.h.
Total 15 s.h.
Second Semester
29.83 Thermodynamics 3 s.h.
57.22 Principles of Design II 3 s.h.
57.14 Industrial Management Science 3 s.h.
Technical elective 3 s.h.
Humanities or social science elective 3 s.h.
Total 15 s.h.

Senior Year
First Semester
Design course 3 s.h.
Technical electives 12 s.h.
Humanities or social science elective 3 s.h.
Total 15 s.h.
Second Semester
Design course 3 s.h.
Technical electives 9 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.
**Technical elective** 6 s.h.
Total 16 s.h.
The economics elective may be selected from:
6E:100 Price, Employment, and Production Theory 3 s.h.
6E:103 Microeconomics 3 s.h.
6E:111 Labor Economics 3 s.h.
6E:173 Managerial Economics 3 s.h.
The basic or engineering science elective may be selected from:
57:19 Mechanics of Deformable Bodies 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
29:83 Modern Physics 3 s.h.
A biological science course 3 s.h.
**Strongly recommended social science electives:**
The humanities and social science electives must be selected to satisfy the requirements of the College of Engineering.

**Technical electives:** At least 9 or 12 hours are to be selected from the following list. The final three semester hours are to be chosen with the approval of the academic advisor.
56:143 Advanced Human Factors Engineering 3 s.h.
56:148 Advanced Managerial Psychology 3 s.h.
56:151 Microcomputer Applications 3 s.h.
56:153 Engineering Administration I 3 s.h.
56:155 Quantitative Investment Practice 3 s.h.
56:156 Engineering Economic Decisions 3 s.h.
56:164 Reliability Theory and Practice 3 s.h.
56:166 Production Systems 3 s.h.
56:173 Stochastic Operations Research 3 s.h.
56:175 Regression Analysis 3 s.h.
56:178 Digital Systems Simulation I 3 s.h.
56:195 Contemporary Topics in Industrial and Management Engineering arr.

**Graduate Program**
Graduate programs in industrial and management engineering are tailored to meet the needs of the individual. Each student's program of study will be based on his or her background, career objectives, and source academic practice. The program is highly flexible; the goal is academic excellence.

There are four principal areas of academic focus in the graduate program of industrial and management engineering: human factors engineering/ergonomics, information and engineering management, production and quality management, and operations research and applied statistics. Human factors studies concentrate on applying the psychological, physiological, and sociological sciences to problems in manufacturing and service systems. These problems concern fitting the jobs and the organization to the people who perform these jobs within the organization and to the people who are managing the motivating people. Courses in the 40 series cover these topics. Information and engineering management studies concentrate on computerized information systems, software design, administration, and engineering economics as covered by courses in the 50 series. The production and quality management area consists of courses in quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series. Studies in operations research and applied statistics concentrate on mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. Courses in the 70 series cover these topics. Many graduate students tend to focus on one of these specialty areas, while others distribute their studies over two or even all four areas.

Students in the graduate program participate in research in the areas of their academic concentration. Current research in human factors engineering/ ergonomics consists of investigating the effects of visual and auditory information on human information processing, performance time statistics with cognitive tasks, and the effects of information on human performance. Other ergonomics research is directed to the use of computer simulation to solve human workload problems, industrial inspection, computer-aided problem solving, and techniques of ergonomic data collection and analysis. Some current research in information and engineering management consists of facilities design, quality for medical resource allocation, economics of parallel processing, entrepreneurship, governmental redistricting, methods of identifying accident causes through incident data, and economic risk analysis. Production and quality management research is currently focused on computer-based data and scheduling, material handling systems, flexible manufacturing systems, numerically controlled process paths, and inventory record accuracy-assurance procedures. Operations research and applied statistics is centered on optimization, improvements in robust regression, simulation and random number generation, and the development of programming techniques for discriminant classification problems. Other research is directed toward extending the capabilities of computer graphics.

**Master of Science**
Two M.S. programs are available—a thesis and a nonthesis program. Students considering eventual admission to a Ph.D. program are strongly advised to select the thesis option. The M.S. thesis option requires a minimum of 30 seminar hours of course work of 100 or 200 level courses, including at most eight semester hours of research. Those students who elect the nonthesis option are required to complete a minimum of 36 semester hours of course work at the 100 or 200 level (including at least nine semester hours at either the 200 level or at the 100 level with the designation "advanced" or "contemporary topics" in the course title). A tentative plan of study for each student is determined through consultation with his or her advisor; the final plan of study is reviewed by the student's examining committee. Requirements of the industrial and management engineering program chair, and by the Graduate College dean.

Enrolling students in all programs will 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 useful preparation. Compensatory course work may be required for students with nonengineering backgrounds.

The final examination must include a minimum grade point average of 3.0 on all graduate course work (both 100 and 200 level courses). The University of Iowa is not eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. It may be composed of both written and oral parts. The examination will explore further the student's course preparation and/or an appropriate individual investigation.

**Doctor of Philosophy**
Typically, Ph.D. programs in industrial and management engineering consist at least 72 hours of study including research for the dissertation. Part-time Ph.D. studies are discouraged. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy will require 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 completion of the course work specified by the student and the examining committee, the student will be admitted to the comprehensive examination, which includes both written and oral parts. Part of this examination will usually include the presentation of a dissertation proposal, so that the comprehensive
Special Facilities and Laboratories

Engineering Core
For information about laboratories affiliated with core courses coordinated by other departments, see the subsections for each of the other engineering departments.

Required and Elective Course Laboratories
Industrial and management engineering occupies the north wing of the fourth floor in the Engineering Building. Most classes and seminars meet there. Faculty, graduate student offices, and laboratories are also located there.

Computer-Based Education Laboratory
Provides on-line interaction with the University's computer systems for both standard computations and computer graphics applications.

Microcomputer Systems Laboratory
Contains microcomputers to support activities in the information and production systems areas of education and research. New software packages for statistical analysis, computer graphics, project management, and other purposes are available.

Integrated Systems Laboratory
Provides a facility and equipment for several course and research needs including industrial laboratory exercises, design projects, and research development. Various forms of testing devices, photographic equipment, television recording and playing equipment, and machine tools, sensing devices, and reconfigurable materials testing and physical simulators are available.

Human Factors Laboratory
For conducting human factors ergonomics research and education. Contains a powerful microcomputer with numerous features and peripherals for the real-time collection and analysis of human performance data as well as alternative forms of information displays and human response recorders.

Manufacturing Laboratories
Located in the west basement area of the Engineering Building, these laboratories provide machine tools for various forms of metal removal and joining, melting and heat treating, furnaces, holding equipment, nondestructive and destructive testing devices, load force dynamometers, various forms of metrology devices, and microscopic equipment for instruction and research in manufacturing processes.
marketing and sales, and management, and are employed throughout all industries.

Undergraduate Program

The undergraduate program prepares the student for a career in engineering, with an emphasis on the technical areas of thermal energy systems and the conversion of thermal energy to mechanical and electrical energy, mechanical systems and machines, and design and control of these systems. The undergraduate curriculum provides a substantial number of electives in both the technical and the humanities and social science areas. Technical electives are selected to provide in-depth knowledge, in at least one of the major disciplines of mechanical engineering. Technical electives in major disciplines are offered in thermodynamics, heat transfer, solar energy conversion, fluid mechanics, aerodynamics, mechanical design and systems, feedback control, computer graphics, computer-aided design, fracture mechanics, and biomechanics. At upperclass students undertake a design project. A handbook describing the curriculum and program requirements is available in the department office.

Curriculum

Sophomore Year
First Semester
22M:37 Engineering Calculus III 4 s.h.
57:10 Dynamics 3 s.h.
57:11 Introduction to Electrical Science 3 s.h.
57:15 Materials Science I 3 s.h.
57:16 Thermodynamics I 4 s.h.
Total 17 s.h.
Second Semester
22M:38 Differential Equations for Engineers 4 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:18 Principles of Electronic Instrumentation 3 s.h.
57:19 Mechanics of Deformable Bodies 3 s.h.
29:81 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year
First Semester
22S:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
29:82 Intermediate Engineering Physics II 3 s.h.
57:21 Principles of Design I 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 3 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.
Humanities or social science elective 3 s.h.
Total 16 s.h.
Second Semester
28:83 Modern Physics 3 s.h.
56:52 Mechanical Systems 3 s.h.
56:45 Heat Transfer 3 s.h.
56:42 Thermodynamics II 3 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.
Humanities or total science elective 3 s.h.
Total 15 s.h.

Senior Year
First Semester
58:86 Experimental Engineering Design I 4 s.h.
58:55 Mechanical Systems Design I 4 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.
Technical electives 6 s.h.
Humanities or social science elective 3 s.h.
Total 17 s.h.
Second Semester
58:48 Thermal-Fluid Systems Design 4 s.h.
58:86 Mechanical Engineering Project 3 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.
Technical electives 6 s.h.
Humanities or social science elective 4 s.h.
Total 17 s.h.

Graduate Program

The mechanical engineering graduate program at both the M.S. and Ph.D. levels is designed to educate students in contemporary methods and solution techniques at an advanced level and to prepare them for a professional career in mechanical engineering design, development, and research. The plan of study is tailored to meet the student's career objectives. The principal areas of concentration in the graduate program are thermal science and systems, fluid mechanics, mechanical systems, and biomechanics, each of which is briefly described below.

Fluid Mechanics
The graduate program in fluid mechanics is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. Emphasis is given to the education of fundamental principles and techniques of solving problems in the various fields of fluid dynamics applications. In addition to physics modeling, considerable emphasis is given to the use of digital computers, both in the mathematical modeling of fluid 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 placed on the fundamentals of thermodynamics and heat transfer, and associated analytical and experimental methods used in energy conversion systems. Areas of concentration include gas dynamics, numerical heat transfer, solar energy systems and thermal systems, combustion, radiation, and convective heat transfer.

Mechanical Systems
The graduate program in mechanical systems is designed to prepare those who wish to pursue careers in high-level applied research, advanced system analysis, and design or teaching. Emphasis is placed on fundamental principles and 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 (fatigue, fracture mechanics, etc.).

Biomechanics
The graduate program in biomechanics is designed to provide the student with a strong background in the various aspects of this interdisciplinary subject. The educational experience is aimed at those who wish to pursue careers at the graduate level applied research in bioengineering, medicine, and related fields. Emphasis is placed on fundamental principles and experimental techniques used in the study and design of biomedical systems. Areas of concentration include biomechanics of the central nervous system, the biomechanics of the spine, biomechanics of the lower and upper extremities, cardiovascular biomechanics, biomedical systems analysis, optimization as applied to biomechanics, biomedical image analysis, and health care delivery.

Master of Science
The M.S. program requires a minimum of 30 semester hours of courses work. Students may choose either a thesis or non-thesis program. A thesis program may include six semester hours in research. The non-thesis program must include at least six semester hours of 200-level courses. After admission to a graduate degree program, the student is urged to visit with the mechanical engineering faculty and to find an academic advisor within the first two semesters. All graduate students in residence are required to attend the Mechanical Engineering Graduate Seminar. To earn the M.S. degree, the student is required to attain a minimum grade-point average of 3.0 on a minimum of 30 semester hours of graduate work.
and to be successful in the final examination administered by the student’s committee. The requirements for the M.S. degree may be completed within a calendar year for a full-time student. However, students with assistantship duties or other constraints may require between one and two calendar years to complete the degree.

Doctor of Philosophy

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit, including research for the dissertation, beyond the baccalaureate degree. All graduate students on campus are required to attend the mechanical engineering graduate seminar. 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. Upon completion of the course work specified in the plan of study and upon the advisor’s recommendation, the student will be admitted to the comprehensive examination given by the student’s committee. The comprehensive examination shall be conducted within 28 months from the date of starting course work for the Ph.D. degree. During this written and oral examination, the student will be examined over all elementary, intermediate and advanced topics related to his or her degree program. The oral examination will be supervised by the student on his or her preparation for the proposed dissertation research project in addition to the student’s course work. The oral examination is generally taken within one month after the written examination.

Having satisfactorily completed the comprehensive examination, the student normally will be given a maximum of 6 months to successfully defend the dissertation. The doctoral dissertation is required to be a major contribution to the knowledge of the Doctor of Philosophy degree.

Requirements for the Ph.D. degree can generally be completed in three to four years beyond master’s degree for students holding assistantship appointments in the department.

Graduate Admission Requirements

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical sciences with a minimum grade-point average of 3.75 are eligible for admission to the Master of Science degree program in Mechanical Engineering. GRE scores and letters and scores on the Graduate Record Examination (GRE) Aptitude Test are also taken into account in admission decisions.

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering discipline or a curriculum in the mathematical and physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.0. Reference letters, scores on the GRE Aptitude Test, student research interests, previous graduate study grade-point average, and other factors are also considered in making the decision to admit a student. Students with a Ph.D. objective who enter with a baccalaureate degree must first be admitted to the M.S. program.

Admission as a Ph.D. student is conditional until the student successfully completes a qualifying examination that is administered by his or her committee during the second semester of studies after initiating course work for the Ph.D. degree. Students graduating with the M.S. degree from the mechanical engineering department at The University of Iowa may request that the M.S. final examination also include the Ph.D. qualifying examination. The decision on whether the student’s performance in this examination is adequate for admission as a Ph.D. student shall be made by the students committee and the department chair. After the student passes the Ph.D. qualifying examination, a Ph.D. committee is selected by the student and his or her advisor, to be approved by the department chair and the graduate studies committee shall include at least five faculty members, of whom at least one must be from outside the Department of Mechanical Engineering.

Financial Assistance

Financial support is available to M.S. as well as Ph.D. students. Financial support is usually available through research and teaching assistantships from the Department of Mechanical Engineering, the Iowa Institute for Hydraulic Research, the Center for Materials Research, the Center for Computer Aided Design, and the College of Medicine. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based upon the student’s potential contribution to the research and teaching goals of the program. Students who fulfill their assistantship responsibilities adequately and continue to make satisfactory progress toward their degree objectives will receive promotions in the awarding of new assistantships.

Advanced doctoral students may also qualify for higher-awarded salary positions. All applications for financial support should be directed to the chair of the Department of Mechanical Engineering.

For more details on the Graduate Program in Mechanical Engineering, reference may be made to the Graduate Handbook for the Department of Mechanical Engineering, available in the department office.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The laboratories for fluid flows and transport processes contain a small wind tunnel, a water flume, a water tester, four water channels with porous media, three air jet tables, various air, water, and oil flow devices, and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

There is a laboratory for engineering graphics practice.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see this subsection for each department.

Required and Elective Course Lists

The laboratory for M.E. experimental engineering provides undergraduate students with exposure to contemporary sensors, signal conditioners, instrumentation, and computer aided data acquisition systems.

The Laboratory for Mechanical Engineering Projects provides for either group or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The solar energy and heat transfer laboratory is equipped with a data acquisition system to process data on low on computer. Experiments in solar energy applications and heat transfer measurements are made in this laboratory.

Graduate Facilities and Laboratories

Graduate and undergraduate courses are closely connected with the research and consulting activities of the institute, particularly in the areas of fluid mechanics, hydraulic engineering, flow instrumentation, and some aspects of thermal sciences related to diffusion and dispersion of waste heat in water.

In the thermal engineering laboratories, research is conducted in the solar energy, thermal radiation, combustion, and heat transfer laboratories in the Engineering Building.

The mechanical engineering systems laboratories are equipped to give students a wide variety of experience in using modern methods of measurement and control, including computers, a variety of strain gauges, a photoelastic laboratory, and other conventional instrumentation.
The biomechanics laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Equipment includes a photoelastic bench with 12-inch transmission polariscope, photoelastic oven, fringe multiplier, contour projector, photo-stress meter, and recording equipment.

The hemodynamics laboratory is equipped for research in cardiovascular fluid dynamics. Equipment includes a Laser Doppler Anemometer System for fluid velocity and turbulence measurements, a mock circulatory system, a Brookfield viscometer, pressure transducers, and miscellaneous measuring instruments.

Courses

**Special Courses**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering - Specialization</td>
<td>Focuses on advanced topics in mechanical engineering, including design and analysis of mechanical systems.</td>
</tr>
<tr>
<td>Advanced Stress Analysis</td>
<td>Provides in-depth study of stress analysis principles and their application to design problems.</td>
</tr>
<tr>
<td>Experimental Mechanics</td>
<td>Seminar and laboratory course on stress analysis; includes a mechanical testing laboratory.</td>
</tr>
<tr>
<td>Mechanical Dynamics</td>
<td>Focuses on the dynamics of mechanical systems, including vibrations and wave propagation.</td>
</tr>
<tr>
<td>Computational Fluid Mechanics</td>
<td>Introduces computational methods for fluid dynamics, including numerical solutions to fluid flow problems.</td>
</tr>
<tr>
<td>Finite Element Analysis</td>
<td>Focuses on the finite element method for solving engineering problems.</td>
</tr>
<tr>
<td>Analytical Mechanics</td>
<td>Focuses on analytical methods for solving engineering problems.</td>
</tr>
<tr>
<td>Mechanical Vibrations</td>
<td>Focuses on the study of mechanical vibrations and their effects on structural integrity.</td>
</tr>
<tr>
<td>Energy in Constrained Systems</td>
<td>Focuses on the principles of energy conservation in constrained systems.</td>
</tr>
<tr>
<td>Electromagnetic Principles</td>
<td>Focuses on the principles of electromagnetic fields and their applications.</td>
</tr>
<tr>
<td>Thermal and Fluid Dynamics</td>
<td>Focuses on the principles of heat transfer and fluid dynamics, including heat transfer and fluid flow.</td>
</tr>
<tr>
<td>Thermodynamics I</td>
<td>Focuses on the principles of thermodynamics, including heat transfer and fluid flow.</td>
</tr>
<tr>
<td>Heat Transfer I</td>
<td>Focuses on the principles of heat transfer, including conduction, convection, and radiation.</td>
</tr>
<tr>
<td>Thermosyphon Concepts</td>
<td>Focuses on the principles of thermosyphon systems, including heat transfer and fluid flow.</td>
</tr>
<tr>
<td>Advanced Heat Transfer</td>
<td>Focuses on advanced topics in heat transfer, including conduction, convection, and radiation.</td>
</tr>
<tr>
<td>Heat Exchanger Analysis</td>
<td>Focuses on the principles of heat exchanger design, including conduction, convection, and radiation.</td>
</tr>
<tr>
<td>Energy in Constrained Systems II</td>
<td>Continues the study of energy in constrained systems, including advanced topics on energy conservation.</td>
</tr>
<tr>
<td>Advanced Stress Analysis II</td>
<td>Continues the study of advanced stress analysis principles and their application to design problems.</td>
</tr>
<tr>
<td>Thermal and Fluid Dynamics II</td>
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<tr>
<td>Heat Exchanger Analysis II</td>
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<tr>
<td>Energy in Constrained Systems III</td>
<td>Continues the study of energy in constrained systems, including advanced topics on energy conservation.</td>
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<tr>
<td>Advanced Stress Analysis III</td>
<td>Continues the study of advanced stress analysis principles and their application to design problems.</td>
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<tr>
<td>Review of CONTINUOUS interactive program</td>
<td>Reviews and evaluates the performance and effectiveness of a continuous interactive program.</td>
</tr>
<tr>
<td>Development, data management, execution on computer graphics, and development of interface systems, and system control.</td>
<td></td>
</tr>
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<td>Advanced Stress Analysis</td>
<td>Provides advanced study of stress analysis principles and their application to design problems.</td>
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**Review of CONTINUOUS interactive program development, data management, execution on computer graphics, and development of interface systems, and system control.**
Mechanical Systems

56.211 Intermediate Dynamics 3 hr.
Thermodynamic and fluid mechanics, aerodynamics, rotor dynamics, vibration, fluid mechanics, and internal-combustion engines. Prerequisite: 56.210. Same as 54.140.

56.180 Fluid Mechanics and Heat Transfer 3 hr.
Development of various numerical and algebraic techniques for research, design, and analysis of heat-transfer processes. Prerequisites: 56.189 and 56.180.

56.189 Computational Fluid Dynamics and Heat Transfer 3 hr.

56.179 Advanced Topics in Thermal and Fluid Engineering 3 hr.
Advisement of advanced topics in thermodynamics, fluid mechanics, combustion, heat and mass transfer, and related experimental and analytical techniques. Selection of subject and content will be determined by the instructor and student interest. Prerequisites: 56.181 or 56.149.

56.205 Advanced Mechanical Design 3 hr.
Advanced topics in mechanical design, including stress analysis, material properties, fatigue, fracture mechanics, and design for manufacturing. Prerequisite: 56.204.

56.204 Mechanical Systems Design 3 hr.

56.199 Analytical Mechanics of Continua 3 hr.

56.196 Advanced Analytical Mechanics 3 hr.

56.192 Stress Analysis 3 hr.

56.181 Mechanical Engineering 3 hr.

56.154 Energy Methods in Mechanical Systems 3 hr.

56.133 Solar Energy and Heat Transfer 3 hr.

56.132 Intermediate Mechanical Systems Design 3 hr.

56.129 Mechanical Systems 3 hr.

56.123 Vibration and Shock 3 hr.

56.120 Vibration and Shock 3 hr.

56.115 Dynamics of Machinery 3 hr.

56.114 Mechanics of Structures 3 hr.

56.113 Vibrations and Structural Dynamics 3 hr.

56.112 Mechanical Vibrations 3 hr.

56.111 Vibration and Structural Dynamics 3 hr.

56.108 Automatic Control of Dynamic Systems 3 hr.

56.102 Automatic Control of Dynamic Systems 3 hr.

56.101 Automatic Control of Dynamic Systems 3 hr.

Graduate Seminars, Advanced Topics, and Research

56.149 Seminar: Mechanical Engineering 3 hr.

56.136 Seminar: Mechanical Engineering 3 hr.

56.127 Seminar: Mechanical Engineering 3 hr.

56.120 Seminar: Mechanical Engineering 3 hr.

56.115 Seminar: Mechanical Engineering 3 hr.

56.113 Seminar: Mechanical Engineering 3 hr.

56.108 Seminar: Mechanical Engineering 3 hr.

56.106 Seminar: Mechanical Engineering 3 hr.

56.101 Seminar: Mechanical Engineering 3 hr.

56.148 Seminar: Mechanical Engineering 3 hr.

56.147 Seminar: Mechanical Engineering 3 hr.

56.146 Seminar: Mechanical Engineering 3 hr.

56.145 Seminar: Mechanical Engineering 3 hr.

56.144 Seminar: Mechanical Engineering 3 hr.

56.143 Seminar: Mechanical Engineering 3 hr.

56.142 Seminar: Mechanical Engineering 3 hr.

56.141 Seminar: Mechanical Engineering 3 hr.

56.139 Seminar: Mechanical Engineering 3 hr.

56.138 Seminar: Mechanical Engineering 3 hr.

56.137 Seminar: Mechanical Engineering 3 hr.

56.136 Seminar: Mechanical Engineering 3 hr.

56.135 Seminar: Mechanical Engineering 3 hr.

56.134 Seminar: Mechanical Engineering 3 hr.

56.133 Seminar: Mechanical Engineering 3 hr.
Graduate College

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 figure reflects the breadth of the University's graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarships, fellowships, and research 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 12-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 fields:

- Accounting
- African-American Studies
- American Studies
- Anatomy
- Anthropology
- Applied Mathematical Sciences
- Art
- Art History
- Asian Civilization
- Astronomy
- Biochemistry
- Biology
- Botany
- Business Administration
- Chemistry
- Civil and Environmental Engineering
- Classics
- Comparative Literature
- Computer Science
- Criminal Justice and Corrections
- Dental Hygiene
- Economics
- Education
- Electrical and Computer Engineering
- Endodontics
- English
- Fixed Prosthodontics
- French
- Genetics
- Geography
- Geology
- German
- History
- Hospital and Health Administration
- Industrial and Management Engineering
- Journalism
- Latin

Dean: Bruce C. Stachler, Dean to Advanced Studies: Rudolph W. Schultz, Associate deans: James E. Jacobsen, Charles M. Muehl Graduate Examiner: Mary Palmberg
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 first consult with the department chair and then enroll in a departmental program in the Graduate College. For details, see Section XII.E in "Rules and Regulations of the Graduate College" in this section of the Catalog.

Aging Studies Program

The Aging Studies program is a multidisciplinary interdisciplinary program administered by the College of Liberal Arts in cooperation with other colleges of the University. The program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in Aging Studies. For further details, see "Aging Studies Program" in the 'College of Liberal Arts' section of the Catalog.

Applied Mathematical Science

The program in Applied Mathematical Sciences is a broadly based interdisciplinary program leading to the Ph.D. degree. Students combine study of theoretical and applied aspects of a mathematics science (mathematics, statistics, or computer science) with study in a science (behavioral, biological, physical, or social). See "Applied Mathematical Sciences" under "Division of Mathematical Sciences" in the "College of Liberal Arts" section of the Catalog for a list of faculty and a further description of the program.

Center for International and Comparative Studies

The Center for International and Comparative Studies (CICS) was first established as a component of the University's teaching and research programs concerned with international studies. In March 1984 CICS received Regent's recognition as a Center with the responsibility to serve as a physical, intellectual, and administrative focus for a variety of international activities, including teaching, research, faculty exchanges, publication, funding, and outreach to the public. As present CICS sponsors six interdisciplinary programs: African Civilizations, African Studies, Global Studies, In-Marginal Development, Latin American Studies, and Women in Development. 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 administratively linked to the vice-president for educational development and research. Four of the six programs in CICS have primary institutional missions: African Studies, Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate sections in this Catalog under "College of Liberal Arts"). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee is primarily concerned with research and public programs.

The Center supports international studies by funding more than 60 public lectures and seminars yearly, by providing administrative facilities to grant applicants, and by furnishing a suite of offices in the Jefferson Building where students may meet to host talks and seminars. From time to time CICS provides speakers for smaller foreign relations Council and for other community organizations. CICS subscribes to numerous foreign periodicals, 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, and CICS publishes scholarship notices in several occasional series.

Evolutionary Ecology and Behavior

Program co-directors: Stephen Keddy, Henry Neven Faculty: Robert V. Davidson (Ecology), Robert West (Ecology), Paul Marshall (Ecology), Andrew D. McLean (Ecology), Sarah Neal (Ecology), Leith L. Johnson (Ecology), John L. C. Green (Ecology), and Thomas A. Olesen (Ecology). Assistant professors: Brian Walsh (Ecology), Jonathan P. Fowler (Ecology), and Sara E. V. Vella (Ecology)

Program and Facilities

The departments of Botany and Zoology offer programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and behavior, emphasizing adaptation, the genetic basis of behavior, and natural selection. Particular strengths of the program are behavioral and quantitative genetics, quantitative methods in ecology and behavioral ecology, chemical ecology, and tropical biology. There is a high degree of interaction between coursework and independent research and field observation. Laboratory research may include controlled breeding experiments in which behavior, gene-environment interactions, and genetic covariance of neurophysiological,
behavioral, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits.

Opportunities for field research are provided locally by the Morrocoy Field Campus just outside low-island City, with lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji has year-round laboratory facilities, housing, and a research vessel, and provides the opportunity to study undisturbed prairie, marshland, and lake ecosystems. Three graduate field courses are offered by the faculty, with trips to the Smokies, the Michigan dunes, the desert, the prairie, and other sites. These courses are professional as well as instructional, since research projects are original and have led to publication.

Fieldwork by faculty and students also takes place worldwide. Recent studies have been conducted in East Africa, Thailand, the Caribbean, Brazil, Mexico, Central America, the Great Smoky Mountains, the Sonoran Desert, the American Rockies, 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 the 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 a cooperative education program at the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as video recorders, movie cameras, walk-in environment chambers, computer terminals, a G-MS, and a new 112 computer. There is ample space for housing of groups of plants, marsupials, primates, dogs, milkweeds, orchids, butterflies and moth larvae, and other desirable insects. The university's botanic garden contains over 10,000 species, the Museum of Natural History, and the University of Iowa's American Museum of Systematic Zoology and botany. The University of Iowa is one of a consortium of 21 institutions and universities associated with the Council on International Educational Exchanges (CIEE), which sponsors a Film Studies Program and a Contemporary Culture and Criticism Program. These are two unique academic opportunities offered at the Centro Universitario Americano de Cine and de la Critica a Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train filmmakers or technicians. The broad curriculum provides students with courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between film and other art forms, film and popular culture, film and television, and film and psychology. Students discuss such themes as the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Keaton, the classics; Hollywood films; French cinema and the transition to sound, and European and American avant-garde cinema. Participants study the works of Metz, Freud, Barthes, Lacan, 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 poststructural theory and critical 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 nonverbal 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 modernist French theory to a variety of disciplines. Approaching literature and other types of texts in a new way, this program provides an enriching breadth to the student's critical training. A recent addition to the program is a history specialization characterized by the application to historical cases of insights from other fields, such as linguistics, cultural geography, anthropology, and sociology.

Particular distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and with the social, political, and economic development of groups of ordinary people, seen in their urban or rural contexts. A student may either concentrate in one of the areas above or develop an individual program combining elements from both areas.

Participants are expected to attend the University of Paris III—Censier and to select courses offered in this university and in other institutions of higher learning in Paris. The program is open to students from European universities and students from the University of Iowa. Further information contact the program coordinators.

Joint Law and Graduate Degree Programs

Joint programs with the College of Law and a number of departments in the Graduate College have been developed under which students can simultaneously pursue degrees in both colleges. For further details see "College of Law" section of the Catalog.

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
- 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 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**

The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education aimed at an understanding of the structure, function, and development of the nervous system and its role in behavior. Research and teaching activities cover five major areas: molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience. Training is conducted primarily in the laboratories and teaching facilities of the graduate departments of anatomy, biochemistry, pharmacology, physiology, and psychology, as well as in the College of Medicine and the College of Liberal Arts.

Because of the interdisciplinary nature of neuroscience and the diverse background and interests of entering students, the program provides considerable flexibility in curriculum structure. The plan of study for each trainee is tailored individually to provide appropriate background coursework in biochemistry, physiology, pathology, and statistics as well as a selection of elective courses appropriate to individual scientific objectives. The major required courses of the program are Neuroscience I and II, a two-semester sequence designed to cover the five basic areas of neuroscience as a survey of the background and current concepts of the structure and function of neural systems. First-year graduate students enroll in either the first or second semester of the program and may take electives in the College of Liberal Arts.

For further information, see "Graduate Study in Neuroscience," "Graduate Study in Psychology," and "Research Resource." See "Research Resource." For further information, see "Research Activities."
Graduate Student Senate

The Graduate Student Senate is the University graduate student body’s representative council. Graduate Student Senate Representatives are elected annually from each department of the University having a graduate degree program. The senator’s primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the 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 apply for the first time in the Graduate College of the University of Iowa must secure a formal application 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, December 1 for spring semester enrollment or May 1 for summer enrollment. These are general Graduate College deadlines. Individual departments may establish earlier application cutoff dates.

B. Graduate Record Examination

All applicants prior to consideration for admission should take the General (Aptitude) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or 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 acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject (Advanced) Tests are available require these in addition to the General (Aptitude) Test. Inquires about the General (Aptitude) Test may be directed to University Evaluation and Examination Service, and inquiries about the requirement of the Subject (Advanced) Test should be addressed to the executive of the department in which the applicant is interested.

C. English for Foreign Students

In addition to the General (Aptitude) Test, graduate foreign students 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, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many countries throughout the world. Inquiries should be addressed to the director, TOEFL Educational Testing Service, Princeton, New Jersey 08540.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a grade lower than the minimum established by the Graduate College, must take the TOEFL examination and receive a passing grade prior to consideration for admission. The Graduate College will advise the departments of admission of students bosning or passing the TOEFL test. Individual departments may request such students to take and pass a course at The University of Iowa if an English usage designed especially for foreign students.

D. Early Admission

A student who is within four semester hours of having satisfied the requirements for the candidate’s degree at the University of Iowa or any other accredited college may be given provisional admission.

E. Candidacy

Admission to the Graduate College of the University of Iowa means that the student is eligible to register as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See "Title VII: Master’s Degrees," "Section XI: Two-Year Degrees," and "Section XII: Doctor’s Degrees.")

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of applicants registered as "special students." (See definition of "special status" in next paragraph.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To initiate such action the student must present a statement of major or degree status in the Office of the Graduate College.

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 recommended by their department, or interdepartmental degree program, for work leading to a degree or certificate or professional (or personal) improvement.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department, which will assume responsibility for advising him or her. (See minimum grade-point requirements, "Section IV.") The student on conditional status must achieve regular status within two sessions of registration in the Graduate College (by attaining a grade-point average of at least 2.5 or 3.0 for doctoral students) and acceptance by the major department, or be dismissed.

3. Special—Students with a valid bachelor’s degree and at least a 2.3 grade-point average who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is allowed for only one semester or summer session. Registration for any subsequent session, including another summer session, must be approved by an application and be accompanied by a departmental recommendation that registration be considered. A student registering as a special student can take no more than two courses during a semester or eight credit hours during the eight-week summer session.

H. Minimum Requirements for Admission

Graduates of any college or university accredited by regional accrediting agencies are admitted to the Graduate College if their academic records meet the requirements established for nondoctoral students, a minimum grade-point average of 2.5 is required for admission to conditional status. A minimum of 2.5 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate semester hours, the grade-point average is computed only on the student’s graduate work completed. In cases in which the student’s academic record has a grade-point average below the minimum required, the individual has a Graduate Record Examination score 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.  For students with less than 12 semester hours of graduate work, a minimum of 2.7 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 "Appendix" 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 graduate degree program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment, subject to the approval of the department.  Such petitions must have prior approval of the department of appointment prior to the admission.  The department and the Graduate College may alter the conditions of the admission upon notification by the department.  The department director must have prior approval of the departmental and the Graduate College admissions standards in effect at the time of admission.

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 addition to the maximum 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.  Two hours of additional semester hours if two or more semester hours of undergraduate work are included.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean.  Nine semester hours in the regular semester constitute full-time registration.  If fewer than five full-time semester hours may be carried as a condition of their appointments One-quarter-time and one-half-time appointments are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

B. Courses Not Included in Total Registration

In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying zero semester 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, or no credit, by permission of the instructor.  The number of courses a graduate student may take for limited or no credit is subject to the consent of the dean and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. Half-time appointees may register for not more than 12 semester hours during a semester or five semester hours during the eight-week summer session.

2. Full-time appointees may register for not more than 15 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighths-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration

No form of retroactive registration is permitted.

F. Registration for Part of a Session

A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes not including the examination period in the term.  The total registration may not exceed 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, with the signed approval of the instructor concerned and the Graduate College dean.

G. Extramural Registration

After admission to a departmental program in the Graduate College, registration for work done off campus is accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section II").

2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.

3. Field work as part of a regularly scheduled course or research program.

4. Courses taught off campus by members of the graduate faculty (see "Section II").

5. Minimum semester hours of graduate work required on campus for the master's or doctor's degree.

6. Residence graduate credit from another Iowa Regents' university (see "Section V.B.").

6. As many as nine semester hours of graduate course work at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' university, 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.G") and plays established fees.  (See "Section XII.K." For special fees applicable to postcomprehensive registration, see "Section X.H."").  Students are strongly encouraged to register for extramural registration for residence credit.

I. Correspondence Courses
Correspondence study credits do not count as residence credits. Not 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 earned after the student has been admitted to the Graduate College. In some instances, graduate level correspondence study credit earned after a student has received a bachelor's degree but before enrolling in the Graduate College may be accepted toward an advanced degree with approval of the Graduate College dean upon recommendation of the major department. A graduate student may not register for correspondence courses without the approval of the executive officer of his or her major department and of the Graduate College dean.

J. System of Course Numbers
Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 198. 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 as readings, special projects, or independent study having course numbers of 100 or above.

K. Auditing of Courses
Upon recommendation of the department advisor, any student of the Graduate College may grant permission for another student to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. Dropping of Courses
A student may drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar. The student shall be responsible for the grade of F unless the withdrawal is made prior to the deadline date. The grade of F may be waived only by the Graduate College dean upon recommendation of the student's health advisor or by the Counseling Service. If a student cancels or fails to register, the registration is canceled by the registrar after the deadline date. The student must obtain permission from the dean of the Graduate College before being permitted to reenroll.

Section III. Traveling Scholar Program
A. Program
The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, is designed to allow students to take advantage of special resources available on another campus but not available on his or her own campus. Special course offerings, research opportunities, unique laboratories, and library collections are available to students.

B. Procedure
1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor, then approach an appropriate faculty member at the host institution and receive the approval of the advisor. The advisor must have the privilege to approve or disapprove.
2. After approval the student then approaches the host institution, graduate deans at both institutions will be fully informed by the advisor and the student, and the host institution, graduate deans at both institutions will be fully informed by the advisor and the student.
3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution. The student register for 000-800 CIC Scholar at The University of Iowa.
4. Credit for the work taken will be recorded at the home university.
5. Those desiring additional information should inquire at the office of the Graduate College.

C. Conditions
CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal
A. Nondoctoral Students
A student, except as noted on the conditional status, shall be placed on probation if, after completing eight or more semester hours of graduate work, his or her cumulative grade-point average on graduate work done at The University of Iowa falls below 2.0. If the student is completing eight or more semester hours of graduate work at this University, his or her grade-point average remains below 2.0, 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 conditional status shall be placed on probation if, after completing eight or more semester hours of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.0. If, after completing eight or more semester hours of graduate work, the student's cumulative grade-point average falls below 3.0, he or she 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, or to receive a degree or certificate, nor may the student receive any graduate degree or certificate.

D. Departmental Regulations and Dissemination of Information
In addition to the above University-wide requirements, departments may establish further requirements which will determine the individual student's 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 departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental offices, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments review standards for a given program, the new regulations will apply retroactively to those students already in the program. In addition to notifying students that they are subject to the new regulations, the Graduate College will follow the Manual of Rules and Regulations; any standards established by the department more stringent than the general Graduate College requirements shall be stated in the guidelines. The departmental guidelines and requirements for changes in degree programs provide that the title of the Dean, the D., or the appropriate departmental dean or chair shall be listed on each document, and procedures and policies must be followed. Other requirements, including regulations and procedures, shall be discussed in the following sections:

E. Academic Progress, Probation, and Dismissal Procedures
If a student is facing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in writing the standards the student is facing to meet the standards. The student shall be provided with a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as continuation of probation or probation are imposed, the department shall give the student the time of the transition or probation of this status and its time limits.
A student who will not be permitted to register for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such a decision may follow failure to meet conditions of admission, conditions of probation, pre-announced departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student is denied dismissal, 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 afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See "Section IV.D.")

F. Graduate College Review of Departmental Dismissal

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels there has been unfairness or some procedural irregularity, 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. Credit

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar and a report of this action will be sent to the student and to his or her major department. Credit for these courses 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 graduate credit from another Iowa Regents university may be counted as residence credit at the institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its appropriability toward the degree. (See "Section X.D.") and "X.G.4" for minimum semester hours required for campus of the master's and doctor's degrees.)

C. Reduction in Credits

For course or seminar in independent study, thesis, and research, an instructor may report the student as having completed less credit than the number of semester hours for which a student is registered.

D. Graduate Credit for Veterans Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules 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. Cancellation of Registration and Proportional 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 seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.

4. Grade reports for the first-half and two-thirds credit periods: (a) Instructors report grades only as satisfactory or unsatisfactory. (b) Credit is to be assigned on the basis of total registration minus thesis and seminar. (c) Courses are 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 twelfth week 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 courses.

7. In each instance the instructor reports the student's credit, grade, and date of cancellation. No credit is granted unless the student's work is satisfactory at the time of leaving.

8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. Marks Carrying Graduate Credit

These are A, B, C, and D—satisfactory.

B. Marks Carrying No Graduate Credit

These are D—poor, F—failed, I— incomplete, W—withdrawn without credit, R—registered, 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 semester is not completed because of illness, accident, or other reason beyond the student's control. In registrations for these courses, an instructor may, in his or her discretion, authorize the satisfactory/unsatisfactory grades to be applied. (See next paragraph. "E.") The student must remove that mark within the first session or registration after the excused date of the session for which it is given, or else the grade becomes F, except that students with I's from the spring semester are exempt from completing the course during the succeeding summer.

Specific deadlines for the submission of student work to the faculty and for the faculty's report on grades to the registrar will be set by the Graduate College dean for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes, removal of an I is accomplished only through completion of the specific work for which the mark is given.


Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student's work during the course is not unsatisfactory; that he or she has performed work that is at least equal to the work of regular students used in computing grade-point averages. A student cannot receive an S if the grade is changed from the letter grade. In addition, departments may ask the Graduate College to reserve the mark of S to be used of grades of S and U as described above, to denote a superior or exceptional nature, and are not used when the above approval is not granted. In general, these requests may be granted for no less than one session and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. Grades of S and U

S and U may be used for courses taken by a graduate student outside the major department or educational degree program provided that the instructor of the course and the student's departmental advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filling a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the third week of a semester or the midday of the second week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice-versa will be allowed after these dates.
It is not the policy of the Graduate College to abandon the traditional letter grades described in the section; however, in certain exceptional instances, the Dean reserves the right to alter such grades in courses in one area to register courses in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.

G. Computed Grade-Point Average
This is based only upon graduate work graded A, B, C, D, and F. (A—4, B—3, C—2, D—1, F—0).

Section VII. Graduate Appointments
A. Scholarships
Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College; (b) cumulative grade-point average of at least 3.0; (c) a GRE score or a GMAT score above a point to be designated by the Graduate College; (d) a satisfactory rate of progress in completing the program for the degree.
2. Preference will be given to candidates for the degree of Master.
3. Recommendations for graduate scholarships by the Department of Graduate College by the appropriate departmental advisory or graduate dean. A graduate scholarship may be awarded whether or not a student holds an assistantship or amount of scholarship for the academic year may vary but will not exceed the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. Graduate College Fellowships
Fellowships are awarded by the Graduate College. Fellowships are recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purposes of the awards is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College in consultation with the Graduate Council.

C. Faculty Research Assistantships
Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide research service to professional members of the academic staff and to provide apprenticeship experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section H. D."). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time at the special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. Faculty research assistantships appointed by the Graduate College pay their own fees. Graduate appointments beginning in August are usually made by the Graduate College, and recommendations of the various departments in March of each year, although applications may be considered at any time. Appointments should be made on the form provided by the Graduate College, and should be accompanied by recommendations and/or a letter summarizing the student's qualifications.

D. Graduate Assistantships
These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both ends, academically superior graduate students who show exceptional promise as teachers are selected for graduate assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships
Scholars, fellow and research assistantships on the Graduate College budget may be reserved for regular students in good standing in order to hold such appointments. Appointments will be terminated when registration and/or student status is terminated. In addition, a scholar or fellow may be promoted or reduced an appointment until after approval for admission to the Graduate College by the director of admissions.

F. Dismissal of Assistants
A uniform policy governing 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.

G. Research Associateships and Postdoctoral Fellowships
These provide for independent research. Appointment is made through the Office of the Vice-President for Academic Affairs.

H. Credit
No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or faculty research assistant.

I. Loans
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Scholarships and Loans" section of the Catalog.

J. Other Forms of Support
Many departments offer financial assistance in the form of internships, part-time employment on research programs, or part-time teaching. These opportunities should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College
The work leading to a Master's degree in the Graduate College offers degree programs are listed under "Courses Offered in the Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. Application for Degree
The student must file an application for an anticipated degree with the Registrar not less than ten weeks after the start of the term or the final week after the start of the summer session 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 provision. Students who must register for the session in which the degree is to be conferred are not allowed to graduate in a year. Students are not allowed to graduate in a year. The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following provision. Students who must register for the session in which the degree is to be conferred are not allowed to graduate in a year. Students are not allowed to graduate in a year. The student must be enrolled during the session in which the degree is to be conferred.

C. Final Examination
Students who have completed all course work must take an examination in the final term. Students who must register for the session in which the degree is to be conferred are not allowed to graduate in a year. Students are not allowed to graduate in a year. The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following provision. Students who must register for the session in which the degree is to be conferred are not allowed to graduate in a year. Students are not allowed to graduate in a year. The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following provision. Students who must register for the session in which the degree is to be conferred are not allowed to graduate in a year.

D. Registration
Study is completed, including the final examination and thesis defense for a graduate degree wide enrolled in the Independent Study sequence, may receive the degree in the following session without additional registration.

Section X. Master's Degrees
A. Kinds of Degrees
Master's programs requiring a minimum of 33 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Administration degree, Master of Comparative Law, Master of Arts in Teaching degree, and such other
master's degrees as are approved by the graduate faculty.

B. Plan of Study
The applicant for a master's degree must file a plan of study approved by the adviser and the departmental executive with the Graduate College within the session in which the degree is to be granted and by a date to be established by the Graduate College dean. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also "Section V.D. Departmental Regulations Regarding Dissemination of Information.")

C. Major and Related Fields
The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the department, may include related subjects from other departments.

D. Residence Requirement
The minimum of 30 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 examinational registration may qualify toward fulfillment of this 24-hour residence requirement (see "Section II. G. Exam Registration") in addition to regular on-campus registration. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient protection between the student and the graduate faculty and have prior approval of the Graduate College Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. Reduction of Old Credits
Credits for a master's degree dating back more than 10 years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses
Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accomplished in the professional college must be directly related to the intended major field of study in the Graduate College and be approved by the departmental executive. Work duplicated while enrolled for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nonprofessional degrees in the Graduate College only when the student is registered in an appropriate joint degree program.

G. Two Master's Degrees
The granting by this University of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 60 semester hours of graduate credit.

H. Master's Degree with Thesis
Not more than nine semester hours of credit for thesis research and writing shall be counted toward satisfying the 30-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 typographical characteristics not later than four weeks before the graduation date on which the degree is to be conferred. The thesis must be deposited with the Graduate College not later than ten days before graduation.

I. Examination Committee
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. Examin ing Committee.")

J. Final Examination
An examination committee for each master's degree includes a final examination which, at the discretion of the department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examination committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following session.

The examination may be repeated only once.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for this master's examination.

K. Examining Committee
The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the department or program, at least two of whom are from the major department. If the examination 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 or her 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 this program, the thesis may consist of a novel, a painting, a play, a musical composition, or any other approved artistic accomplishment. The program for the Master of Fine Arts degree requires at least two years of residence credit at this college. This requires a minimum of 48 semester hours of regular credit, at least 30 of which must qualify for residence credit at this University. A Master of Arts degree may be awarded 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 of 60 semester hours of graduate credit.

For other requirements see "Section X.B. Policies for Professional Fields"; "E. Reduction of Old Credits"; "F. Limit on Professional Courses"; "H. 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 prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services.

Of the minimum of 60 semester hours required for the degree, at least 24 semester hours must be completed in residence at this University, of which 15 semester hours must be earned while the student is in residence during the 24- month period or during two summer sessions.

Twenty-eight of the 60 semester hours are prescribed in the area of
specialization. The others are in cognate fields, supervised experience, and the time of submission of the plan of study. 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 upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa.
2. A minimum of 36 semester hours in graduate social work, including a research requirement.
3. A final examination.

A thesis is optional.

The requirement of 36 semester hours in residence is to mean that a student who can satisfy the faculty of the school of social work's requirements, 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 less than 36 semester hours. In no case may a student qualify for the degree on less than 48 semester hours of graduate credit.

The curriculum is organized into four general areas: social 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 only in August.

For program requirements, see "Section X.B. Plan of Study; "E. Reduction of Old Credits; "F. Limit on Professional Courses; "H. Master's Degree with Thesis; ; and "K. Examining Committee."

Section XI. 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 the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject major for investigation. 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 one-third of this residence must be spent in full-time enrollment in a discipline, at this University, beyond the first 24 semester hours of graduate work; this requirement may be met either by enrollment as a full-time student (nine semester hours minimum) in each of two semesters, or enrollment for a minimum of six semester hours in each of three semesters during which the student must be at least one-half time assistanship certified by the department as contributing to the student's doctoral program. (For purposes of record and assessment of fees, student registration will reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable training credit, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs

A student may propose a proposal for an interdisciplinary course of study, including the thesis for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the sponsoring department. Final approval of such individual programs is granted by

the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, 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

Courses taken in the student's major field or in professional courses required for a graduate program leading to a doctoral degree may not be 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 and the major department. Work completed while attending a professional course in law, medicine, or dentistry will not be counted toward a minor in the one academic year which must be spent in residence as a doctoral student on the campus of this University.

H. Joint Program for Master's and Doctoral Degrees

Those students who expect to continue their training through the doctoral degree may file a joint program for the master's and doctoral degrees. The master's examination may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its actions on the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the college 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 a master's degree as an interdepartmental part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments in which competence is required by the department itself, as well as by the degree, and those departments in which competence requirements will be found in the departmental statements of standards and procedures (see "Section IV.D.").
Departmental executive officers are responsible for reporting completion of registration of the student for entering on the student's record.

Specifications of departmental requirements for the major languages are filed in the Graduate College office and may be changed upon the initiative of the departments.

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 on the candidate's mastery of the major and related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate's mastery of the subject at or near the end of the two years required for the registration and prior to the completion of the dissertation. The comprehensive examination and the final examination, which is concerned chiefly with development in the minor and related subjects, are the two principal examinations required for the master's degree and the doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and will be judged satisfactory, satisfactory with reservations, or unsatisfactory. Unsatisfactory performance in any department office within 14 days after the completion of the candidate's comprehensive examination with a copy of the letter of unsatisfactory will make the committee report unsatisfactory.

In the event of a report with two or more votes of "satisfactory with reservations," the report should be reviewed by an unsatisfactory committee appointed by the Graduate College. If the unsatisfactory committee should record with the record 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 is required, the time allowed for satisfying the stipulations and any courses or other procedures that are required. The executive of the major department should promptly send a written report to the Graduate College giving the date of removal of reservations.

In case of a report on unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to take the examination for reexamination not sooner than four months after the first examination. The examination 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 reinstated to candidacy until the student has satisfactorily completed all requirements that have been approved by the student's advisor, the departmental executive, and the Graduate College dean.

At 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 000-000 FNED Postcomprehensive Registration and paying a social premium fee for any semester in which the department (i.e., department chair or director of graduate studies) and the student's advisor determine that the student is neither making significant use of University facilities (those library privileges) nor partaking 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 the dissertation is required by the department.

L. Dissertation for the Doctoral Degree

A copy of the dissertation, complete and in final form, must be submitted to the office of the Graduate College before the final examination, and no later than four weeks before the graduation date on which the degree is to be conferred, and two copies must be deposited at the Graduate College. The dissertation must be in the form prescribed by the university. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 150 words, will be deposited with the dean. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library.

If the dissertation includes any nonprint form or material, 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 doctoral faculty by a recognized scholar of professional rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major degree is required. The dissertation should be comprehensive examination. If the final examination of the dissertation committee must be a member of the graduate faculty from outside the major department.

M. Dissertation Fee

A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination should include a critical inquiry into the purposes, methods, and results of the investigation—not a mere recapitulation of the preceding work, but an intensive questioning on areas of knowledge comprising the immediate context of the investigation.

The final examination may not be held until 10 days after the student has passed the comprehensive examination nor until the student has accepted for first deposit by the Graduate College. However, a student must pass the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in revocation of the title of candidate to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See "J. Comprehensive Examination").

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are required to be present at the request of the 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 48 hours after the examination. The final examination will be evaluated as satisfactory, satisfactory with reservations, or unsatisfactory. Unsatisfactory votes will make the candidate unsatisfactory in the event of a report of unsatisfactory in the final examination. The candidate may present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

D. Examining Committees

The comprehensive and final examinations are conducted by committees of 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 professional rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major degree is required. The examining committee must be a member of the graduate faculty from outside the major department.
Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions
Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

**Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>59636</td>
<td>Ph.D. Precomprehensive Registration</td>
<td>0 s.h.</td>
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<tr>
<td>59637</td>
<td>Master’s Final Examination</td>
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<tr>
<td>59638</td>
<td>GCC Scholarship</td>
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<tr>
<td>59111</td>
<td>CSS Fun Program</td>
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Program Objectives

The overriding objective of formal legal education is to establish a solid foundation for a lifetime of professional growth. The educational elements necessary to build this foundation are varied. Thorough familiarity with the substance of legal principles and with the operation of legal institutions are important components, but the University of Iowa program places an equal emphasis on the development of fundamental legal skills and an appreciation of the roles of law and lawyers in society. A writing feature of the program is the conviction that these skills can be achieved best by an education-in-practice program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging teachers who genuinely are interested in each student’s professional development.

While many law schools rely heavily upon graduate assistants or adjunct instructors to teach lawyers’ skills, the University of Iowa is virtually unique in the award of its commitment of full-time faculty to the development of professional skills in a small-group individualized instruction format.

The University of Iowa College of Law concerns 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 90 semester hours of approved work, take and complete all required courses, achieve a cumulative average weighted average of 65, and satisfy the college’s five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law 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 ten hours per semester. Students who believe they 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 to entering students: late May (at the beginning of the summer session) or 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.

An entering class of up to 45 students is allowed to enter law school in May of the year for which they applied. They complete nearly a full semester of work in the first eleven-week summer session, and if they remain on the “accelerated” track by attending summer school in each subsequent summer, they can graduate nine months earlier than would otherwise be possible. Thus, the accelerated student who begins law school in the summer of 1984 may graduate in August 1988. Students who begin school in the accelerated program, however, are not required to continue in an accelerated track, but may switch to the regular three-year sequence of study.

Both the accelerated and regular programs consist of 90 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer hours without permission of the dean. No student may take more than 15 hours per semester or 13 hours in summer school without permission of the dean.

Summer Session

The summer session consists of two periods of five and one-half weeks during which six to eight upperclassmen and three to four first-year courses normally are offered. Nonaccelerated 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 development of each student’s skills in legal analysis, argumentation, research, and writing.
In the fall semester (or summer for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (or fall for accelerated students), each section contains approximately 20 students. The subject matter of the small-section courses varies from year to year, but has included virtually every course in the 1st-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 discuss the assigned exercises 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 in writing and research opportunities in particular areas of interest (e.g., through specialized courses and seminars), and to expand their training in oral and written advocacy skills, in interviewing and counseling, in negotiation, and in litigation. Very few requirements exist in the second and third years. All students must take 91:210 Appellate Advocacy I in the second year. Before graduating, all must take 91:222 Constitutional Law II and must complete an upper-class small section course. The upper-class requirement assures the students the opportunity to enroll in a small class (usually 20 students) in a variety of subject matters; in conjunction with the substantive materials, students complete writing projects designed to teach legal drafting skills.

Also, in order to graduate, each student must earn five writing credits. The students earn two of the credits automatically by satisfactory completion of 91:210 Appellate Advocacy I and the upper-class small section. He or she can earn the third writing credit through any combination of courses and activities that carry writing credit, including seminar papers, independent research papers, Law Review, Journal of Legal Clinic, 91:410-411 Client Counseling II, 91:420 Moot Court Board, and advanced appellate advocacy activities.

Legal Clinic

Students who have completed one-half of the work toward their J.D. degrees are eligible to participate in the College of Law's Legal Clinic Program, which offers five kinds of opportunities for students to apply the knowledge and skills gained in real cases under the supervision of faculty members and other attorneys. Clinic students earn a half credit in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Legal Aid Clinic represent indigent clients in several Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Assistance Clinic represent inmates at Iowa correctional institutions in habeas corpus and civil cases.

Students in the Complex Civil Litigation Clinic work on substantive matters relating to social welfare rights. Students in the Clerkship Program act as law clerks to trial court judges and public law offices. As such, they observe court proceedings, conduct research, and draft legal memoranda and court papers.

Finally, students in the Legislative Internship Program are assigned to work as legal interns in state legislatures and to work in other aspects of the legislative process.

In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state.

A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for such courses plus clinic.

Joint Law and Graduate Degree Program

The College of Law has developed a program with a number of departments of the Graduate College of The University of Iowa under which students can simultaneously pursue degrees in both colleges. Under this program, if a student takes a course which is relevant to both degrees, the course can, within limitations, be counted toward the four requirements of both and reduce the time required to obtain the two degrees separately. Hopefully, too, the joint-degree student will contribute to one discipline the insights and experience gained in the other. Graduate departments with which joint-degree programs have already been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling Education, Economics, Education, Educational Administration, English, Finance, Journalism, History, Hospital and Health Administration, Library Science, Philosophy, Political Science, Sociology, Social Work, and Urban and Regional Planning. Further information about joint-degree programs is available from the dean of the College of Law.

A two-year program leading to a commission in the United States Army is available to students entering the College of Law. Information about this program may be obtained from the UI Department of Army Military Science.
Law School Admission Test

Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Law School Admission Council. The LSAT Admission Service, Box 2000, Newtown, Pa 18940, and has taken or her test score forwarded to the College of Law, along with the LSDAS report. The test is given several times each year and may be taken at various locations in the United States and abroad. Applicants are urged to take the test during the fall preceding the fall or summer semester for which they are making application. The last test that will be considered by the admissions committee for the summer or fall term of the year will be 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 LSDAS report. Further, the February test was not given for any student applying whose native language is other than English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service, Princeton, New Jersey 08541.

Deposit

Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $50 by April 1. Applicants accepted subsequently to April 1 must make the deposit within two weeks after being notified of favorable action on their applications. In either event, the deposit need not be made if a financial aid application is under active consideration. However, the deposit is due within two weeks after action is taken on the financial aid application. For those who enroll, the deposit is credited toward the student's first University 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

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court no more than 60 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student in the college or from the clerk of the Iowa Supreme Court.

Courses

For descriptions of these courses, consult the college's bulletin, which is available from the Admissions Office of the College of Law.

91110 Legal Methods 3 cr.
91116 Civil Procedure 3 cr.
91118 Constitutional Law I 3 cr.
91120 Contracts and Sales Transactions I 3 cr.
91121 Contracts and Sales Transactions II 3 cr.
91124 Criminal Justice I 3 cr.
91125 Criminal Justice II 3 cr.
91130 Client Representation 3 cr.
91132 Property I 3 cr.
91133 Philosophy of Law 3 cr.
91134 Resource Planning 3 cr.
91162 Legal Aspects of Health and Medical Care 3 cr.
91163 Human Rights in the World Community: Problems of Law and Policy 3 cr.
91165 Introduction to International Law 2 cr.
91166 Civil Procedure 3 cr.
91168 Administration of Estates and Trusts 3 cr.
91169 Administrative Law 3 cr.
91170 Admiralty Law 3 cr.
91171 Advanced Criminal Procedure 3 cr.
91172 Advanced Tax Problems 3 cr.
91173 Artificial Law 3 cr.
91175 Midwest Regional Moot Court Competition 1 cr.
91179 Appellate Advocacy I 0 cr.
91180 Appellate Advocacy II 1 cr.
91181 National Moot Court Competition 1 cr.
91182 National International Moot Court Competition 1 cr.
91183 Magistrate Law Competition 1 cr.
91184 Children and the Law 3 cr.
91185 Business Planning A and B 3 cr.
91187 Arbitration Law and Practice 3 cr.
91188 Constitutional Litigation 3 cr.
91189 The Civil Justice System 3 cr.
91189 Commercial Paper 3 cr.
91190 Commercial Transactions 3 cr.
91190 Commercial Paper and Banking Regulations 3 cr.
91191 Corporate Law 3 cr.
91193 Community Property 1 cr.
91195 Conflict of Laws 3 cr.
91196 Constitutional Law II 3 cr.
91197 Consumer Protection 3 cr.
91198 Contracts Project 3 cr.
91199 Contracts I 3 cr.
91202 Federal Income Tax I 1 cr.
91169 Creditors' and Students' Rights 3 cr.
91209 Corporation II 3 cr.
91210 Summary Dismissal 2 cr.
91211 Economic Justice in Central America 2 cr.
91212 Federal Income Taxation 3 cr.
91250 Employment Discrimination 2 cr.
91251 Education Law 2 cr.
91252 Environmental Law 3 cr.
91254 Employment Discrimination II 2 cr.
91255 Estate Planning Problems 3 cr.
91256 Evidence 3 cr.
91257 Evidence: Theory and Practice 4 cr.
91258 Family Law 3 cr.
91259 Family Estate Planning 3 cr.
91294 Federal Taxation 3 cr.
91295 Federal Tax Litigation 3 cr.
91295 Federal Tax Litigation 3 cr.
91310 Federalism 3 cr.
91310 Governmental Jurisdiction and Practice 3 cr.
91310 Fundamentals of Injury and Disease for Lawyers 2 cr.
91310 Judicial Precedent 3 cr.
91310 Governmental Contracts 3 cr.
null
The College of Medicine, as an integral part of the University, contributes to the educational programs of several Ph.D.-level students, not only those in the health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences offered by the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through "refresher," short-courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities, the college also offers work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also take part in the University's Health Services Research Center.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists, physical therapists, and nuclear medicine technologists.

The medical and associated medical science students have several opportunities to gain practical experience in physicians' offices and community hospitals. For medical graduates, the college offers family practice residency programs at 16 community hospitals in eight cities throughout the state. The college's programs have been accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges. The University of Iowa College of Medicine meets the requirements of all state licensing boards. Its diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards. All other professional programs are accredited by the College of Medicine are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part of—not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, 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 cell 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 detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.
Center for Research on Psychological Disorders of Children

This center draws from the expertise in the departments of Psychiatry, Pediatrics, Neurology, Speech Pathology, Psychology, and Sociology. It is located in the Division of Child Psychiatry.

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 patient care programs related to all aspects of cancer.

Educational and Patient Care Facilities

First and second year classes are taught in the Bowden Science and Medical Laboratories building.

A Health Sciences Library is at the core of the medical campus.

Students acquire clinical experience in the 1,045-bed University Hospitals and Clinics complex, in the adjacent, 130-bed Veterans Administration Medical Center, and in a score of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members comprise the 418-member clinical staff for University Hospitals and Clinics, whose 10 parallel services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 324 resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provides facilities for training of major medical specialties. VCX residents in all such specialties and for postgraduate in a number of subspecialties.

University Hospitals and Clinics serves as a tertiary referral center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about University Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Center" section of this Catalog.

Research Facilities

A number of facilities are administered through the dean's office in support of research and teaching endeavors of the faculty of the College of Medicine.

The animal care facility arranges for the purchase, maintenance, and veterinary care of a variety of animals.

The bioengineering facility provides specialized electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Education is composed of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, videotapes, and audiovisual materials to educators and conducts teaching education workshops.

The medical instrument facilities and laboratories are designed to support research and clinical activities.

The medical graphics, photography, and television services offer consultation, design, and production services in these various art forms. The spectrum of cooperation is greatly expanded by Geographics, a computer-generated graphics system.

The P3 facility meets federal guidelines for recombinant DNA research requiring P3 containment. It can be used also for research on other hazardous human or animal pathogens.

Studies on protein structures are conducted in a facility containing ultracentrifugation, amino acid analyzers, protein sequencers, and spectrophotometric equipment.

A facility for mass spectrometry provides service for structural studies of important biological molecules and their analysis by an interface with a gas chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine presently accepts 175 freshman students each year into its four-year course of study leading to the degree of Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong emphasis on clinical medicine. 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

59.163 Biochemistry. For Medical Students is composed around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In the small group discussions that follow the clinical situations, the student starts to use various problem-solving approaches.

60.103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical notation and surface anatomy. Clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed.
60:104 Medical Embryology offers lectures on human embryology with emphasis on the clinical aspects of normal and abnormal development. Registration is limited to medical students; graduate students are referred to 60:217. The course is offered fall semester.

60:105 General Histology for Medical Students provides a course of study for the core informatics concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

115:102 Human Diseases 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 societal values. The course provides students with small group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63:110 Bioethics provides guidelines for the application of statistical principles to the biological and medical sciences. Emphasis is given to the interpretation of studies published in medical journals.

Second Semester
72:212 Medical Physiology offers the student an understanding of the responses an organism makes to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material in these two courses is related to a clinical point of view. In small discussion groups students explore the implications of laboratory exercises, the students present evaluations of the physiologic mechanisms at work in the clinical material. Some demonstrations are included in the laboratory exercises.

61:103 Medical Microbiology includes immunity 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 continues to play an important role in this course.

66:201 General Pathology for Medical Students is correlated with microbiology in this semester to increase the 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 cellular and tissue, regeneration, infection, and growth disorders. Clinical problem solving and decision-making periods have replaced laboratories in this course.

Third Semester
69:202 Systemic Pathology for Medical Students applies the principles given in the preceding semester to the recognition of common diseases in an organ approach. Student-centered learning is enhanced by discussion groups and practice in case analysis.

60:110 Medical Neuropsychiatry presents the structure of the nervous system. Much of the material is available for self-study and small group study in campus. 60:109 Preventive Medicine presents fundamental help to prepare the student in some of the sociologic, economic, and public health aspects of medical practice.

71:105 Pharmacology for Health Sciences: Medical students are offered the core of basic pharmacology for medical students and other health professionals. The course provides the student with a review of drug mechanisms and the role of the pharmacist in the health care setting. Topics include aspects of clinical practice and the role of the pharmacist in the health care setting.

Introduction to Clinical Medicine
A major interdisciplinary course, 56:111 Introduction to Clinical Medicine, fits 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.

Clinical Clerkships
The third year includes the required clinical clerkships and presents each student with opportunities to work with physicians in a variety of disciplines as they care for their patients. Students spend one week in each of the following areas: Internal medicine, surgery, pediatrics, psychiatry, obstetrics and gynecology, and two weeks in each of anesthesiology, dermatology, neurology, otorhinolaryngology, ophthalmology, radiology, and family practice. Students spend most of this time in Iowa City.

The clinical clerkship year is the most critical period of time in medical education, for this is when the student takes on the posture of a physician to learn at first-hand the complexity of medical science when viewed at the bedside, and to understand the responsibility of the physician for human life.

Period of Selective Study
Followed by the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid
The College of Medicine provides financial assistance on the basis of demonstrated financial need. 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, Carl D. and Brown Medical Student Loan, and Steinhok Loan are College of Medicine programs. The Dr. George Sciamma Scholarship is available to Iowa residents through the Iowa Medical Education Loan Fund.

A limited number of grants are awarded each year to students who demonstrate exceptional need. In certain situations small, short-term emergency loans may be obtained through the college.

Information and advising on financial aid can be obtained through the Office of Student Services, College of Medicine.

Educational Opportunities Program
The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups under-represented in American medicine.

Admission to the M.D.
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 through June 15 of the year preceding the beginning of the class for which application is being made.

Prospective students are urged to apply
as early as possible. The closing date is December 1.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $75 fee must accompany the final application from applicants who have not completed work in radiology at The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Each applicant must also file with the University Office of Admissions an official transcript from each college he or she has attended.

Requirements

An applicant for admission to the College of Medicine must have:

- Received the baccalaureate degree, or
- Completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year immediately,
- Completed three years of a baccalaureate program meeting the general graduation requirements of the college he or she is alrea

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory sequence
- Mathematics: college algebra and trigonometry, or passed college algebra and trigonometry in high school
- Chemistry: as a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles.
- Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not botany alone), and an advanced biology course.

All the foregoing must be taken with appropriate laboratory.

Applicants for admission to the College of Medicine must possess the capability to tolerate the entire medical curriculum and achieve the degree. Doctor of Medicine: the candidate must demonstrate proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine:

- Candidates must be able to observe and describe experiments in the basic sciences;
- Candidates must be able to learn to analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgments;
- Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination;
- Candidates must be able to perform palpation, auscultation, and percussion;
- Candidates must be able to react reasonably to patients and establish sensitive, professional relationships with patients;
- Candidates are expected to be able to communicate the results of the examination to the patient and to their colleagues with accuracy, clarity, and efficiency;
- Candidates are expected to be able to learn and perform routine laboratory tests and diagnostic procedures;
- Candidates are expected to be able to display good judgment in the assessment and treatment of patients;
- Candidates must be able to learn to respond with precise, quick, and appropriate action in emergency situations;
- Candidates are expected to be able to accept criticism and respond appropriately to appropriate modification of behavior;
- Candidates are expected to possess the perseverance, circumspection, and consistency to continue the medical school curriculum and enter and complete the independent phase of the college of medicine. Applicants who do not meet these standards are encouraged to contact the coordinator of admissions.

All the foregoing must be taken with appropriate laboratory.

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- Candidates must be able to observe demonstrations and experiments in the basic sciences;
- Candidates must be able to learn to analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgments;
- Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination;
- Candidates must be able to perform palpation, auscultation, and percussion;
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- Candidates must be able to observe demonstrations and experiments in the basic sciences;
Regulations and Procedures

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the courses of each grading period. Continuous enrollment of a student who has not satisfactorily completed courses in a preceding grading period may be recommended by the promotion committee, provided that an appropriate tutorial program is designed for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on such examinations or other tests as are determined by each department or course and on clinical skills and competency as deemed appropriate by the department or course. The College of Medicine requires that all students demonstrate proficiency in a variety of cognitive, problem-solving, manual, communicative, and interpersonal skills and insists that all students adhere to general principles of medical ethics. These critical skills and ethical principles are assessed in the Handbook for New Students that medical students receive at registration.

Scholastic performance in the first three years is reported by using the letters A, B, C, and I, as used in the sensitive segment, only grades P, F, and I will be used. The letter F indicates satisfactory achievement at the passing level. The letter I signifies "honors," indicates achievement of a level if the letter F indicates work below the passing level. The letter I indicates that work below the passing level is used when, for good reasons, the student has not attempted to work in a course.

The promotion committee meets at least three times each year, following the completion of academic semesters and at other times as requested by the associate dean for medical student affairs.

The committee reviews with 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, the associate dean for medical student affairs, and the chair of the clinical ethics standards committee for any student who has received grades from clinical courses that are continuance poor academic work or failing to demonstrate proficiency in any of the eleven skills or abilities detailed above, or not meeting medical ethics standards. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in this charge. The promotions committee recommends specific actions to be taken in the case of any student whose skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. These recommendations will be forwarded for action to the medical council and executive committee meeting in next session to represent the faculty. Post mortem recommendations include: immediate dismissal of the student from the College, requiring the student to report all or any part of the curriculum, and allowing the student to continue either a regular or a decelerated schedule. Students having unremediated grades of Failure will be placed on academic probation. A grade of incomplete, if not remediated in the time and manner specified in the promotion committee's recommendation, becomes a grade of Failure. Students who are in a probationary status may be considered for dismissal should further academic difficulties arise.

The promotions committee presents all recommendations for the awarding of the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which acts on the recommendations for the faculty.

Relationship to Course Directors Committees

The course directors committees will provide guidance and counseling for the Medical Council and will be a resource for and provide advice to the promotions committee.

Appeals

Students desiring to appeal promotions decisions must submit an appeal in writing to the dean of the College of Medicine within two weeks after the date of written receipt of the decision. All appeals will be heard by an appeals committee established 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 specified periods of time. A leave of absence should be requested from the associate dean for medical student affairs. Leave will be granted at the discretion of the dean. As leaves must be arranged in advance of the student's absence. If a student requests at any time to be dismissed from clinical clerkship or clinical electives, the student must also obtain permission from the course director.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result in the probation of the department, in a grade of F.

Withdrawal from the College

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 continuing or further registration to any student if it believes that he or she has not lived up to the expected general fitness requirements or 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 confusion as to the best way to resolve the problem. The medical school has a formal procedure as stated in "Promotion Policies and Procedures" and an informal procedure as outlined below.

In the College of Medicine, students with problems or complaints should attempt first to resolve the issue with the faculty member with whom there is a problem. Following a satisfactory outcome, the student may informally discuss the disagreement with the associate dean for medical student affairs of the College of Medicine. This informal discussion would not necessarily lead to involvement of the Office of the Dean in an official capacity. Should these procedures not resolve the situation, the student should then file a formal complaint before the Office of the Dean.

This informal procedure allows the greatest flexibility for all concerned in resolving the conflict and minimizing the extent of an unsatisfactory academic record that are a part of the formal procedures. This informal procedure is intended for any situation a student may encounter including grading disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation, etc., facilitating
patient data), and perceived discrimination or harassment.

When a student is found to have violated a policy, the student may be asked to submit a written explanation of the violation. The explanation should include a description of the policy violation, the circumstances surrounding the violation, and the steps taken to prevent similar violations in the future. The explanation should be submitted within 10 business days of the student's receipt of the notice.

The School of Nursing is committed to providing a safe and respectful learning environment. Students who experience or witness discrimination or harassment in the School of Nursing should report the incident to the dean, the director of the School of Nursing, or the Office of Academic Affairs.

3.1.10.1 Introduction to Clinical Medicine (4 credit hours)

This course introduces students to the principles of clinical medicine, including patient assessment, diagnosis, and management. Students will learn to identify and manage common medical conditions and understand the role of the physician in patient care.

3.1.10.2 Introduction to Community Medicine (2 credit hours)

This course focuses on the delivery of health care services in the community, including the role of public health professionals, health care providers, and community members in promoting health and preventing illness.

3.1.10.3 Introduction to Public Health (2 credit hours)

This course introduces students to the field of public health, including the history and evolution of public health, the role of public health in society, and the current challenges facing public health professionals.

3.1.10.4 Introduction to Health Policy (2 credit hours)

This course introduces students to the principles of health policy, including the role of government in health care, the impact of health policy on public health, and the role of health policy in addressing social determinants of health.

3.1.10.5 Introduction to Health Information Technology (2 credit hours)

This course introduces students to the field of health information technology, including the role of information technology in managing patient care, the role of health informatics in improving patient outcomes, and the role of health informatics in promoting health equity.

3.1.10.6 Introduction to Health Economics (2 credit hours)

This course introduces students to the principles of health economics, including the role of economics in the delivery of health care services, the role of economics in the allocation of health care resources, and the role of economics in improving health outcomes.

3.1.10.7 Introduction to Health Care Management (2 credit hours)

This course introduces students to the principles of health care management, including the role of management in the delivery of health care services, the role of management in improving patient outcomes, and the role of management in promoting health equity.

3.1.10.8 Introduction to Health Law and Ethics (2 credit hours)

This course introduces students to the principles of health law and ethics, including the role of law in the delivery of health care services, the role of ethics in improving patient outcomes, and the role of law and ethics in promoting health equity.

3.1.10.9 Introduction to Health Psychology (2 credit hours)

This course introduces students to the principles of health psychology, including the role of psychology in the delivery of health care services, the role of psychology in improving patient outcomes, and the role of psychology in promoting health equity.

3.1.10.10 Introduction to Health Promotion (2 credit hours)

This course introduces students to the principles of health promotion, including the role of promotion in the delivery of health care services, the role of promotion in improving patient outcomes, and the role of promotion in promoting health equity.

3.1.10.11 Introduction to Health Administration (2 credit hours)

This course introduces students to the principles of health administration, including the role of administration in the delivery of health care services, the role of administration in improving patient outcomes, and the role of administration in promoting health equity.

3.1.10.12 Introduction to Health Policy and Practice (2 credit hours)

This course introduces students to the principles of health policy and practice, including the role of policy and practice in the delivery of health care services, the role of policy and practice in improving patient outcomes, and the role of policy and practice in promoting health equity.

3.1.10.13 Introduction to Health Care Delivery (2 credit hours)

This course introduces students to the principles of health care delivery, including the role of delivery in the delivery of health care services, the role of delivery in improving patient outcomes, and the role of delivery in promoting health equity.

3.1.10.14 Introduction to Health Care Systems (2 credit hours)

This course introduces students to the principles of health care systems, including the role of systems in the delivery of health care services, the role of systems in improving patient outcomes, and the role of systems in promoting health equity.

3.1.10.15 Introduction to Health Care Reform (2 credit hours)

This course introduces students to the principles of health care reform, including the role of reform in the delivery of health care services, the role of reform in improving patient outcomes, and the role of reform in promoting health equity.

3.1.10.16 Introduction to Health Care Ethics (2 credit hours)

This course introduces students to the principles of health care ethics, including the role of ethics in the delivery of health care services, the role of ethics in improving patient outcomes, and the role of ethics in promoting health equity.

3.1.10.17 Introduction to Health Care Management (2 credit hours)

This course introduces students to the principles of health care management, including the role of management in the delivery of health care services, the role of management in improving patient outcomes, and the role of management in promoting health equity.

3.1.10.18 Introduction to Health Care Regulation (2 credit hours)

This course introduces students to the principles of health care regulation, including the role of regulation in the delivery of health care services, the role of regulation in improving patient outcomes, and the role of regulation in promoting health equity.

3.1.10.19 Introduction to Health Care Delivery Systems (2 credit hours)

This course introduces students to the principles of health care delivery systems, including the role of systems in the delivery of health care services, the role of systems in improving patient outcomes, and the role of systems in promoting health equity.

3.1.10.20 Introduction to Health Care Delivery Policies (2 credit hours)

This course introduces students to the principles of health care delivery policies, including the role of policies in the delivery of health care services, the role of policies in improving patient outcomes, and the role of policies in promoting health equity.

3.1.10.21 Introduction to Health Care Delivery Practices (2 credit hours)

This course introduces students to the principles of health care delivery practices, including the role of practices in the delivery of health care services, the role of practices in improving patient outcomes, and the role of practices in promoting health equity.

3.1.10.22 Introduction to Health Care Delivery Research (2 credit hours)

This course introduces students to the principles of health care delivery research, including the role of research in the delivery of health care services, the role of research in improving patient outcomes, and the role of research in promoting health equity.

3.1.10.23 Introduction to Health Care Delivery Education (2 credit hours)

This course introduces students to the principles of health care delivery education, including the role of education in the delivery of health care services, the role of education in improving patient outcomes, and the role of education in promoting health equity.

3.1.10.24 Introduction to Health Care Delivery Administration (2 credit hours)

This course introduces students to the principles of health care delivery administration, including the role of administration in the delivery of health care services, the role of administration in improving patient outcomes, and the role of administration in promoting health equity.
course requirements for the Ph.D. program in anatomy are structured to ensure that students are well-prepared for their research endeavors.
### Anesthesia

**Department Head:** John R. Troubat  
**Faculty:** professors Samu Georg, Mohamed Ghorab, Peter Jetten, Jack Meyers, Silvio Gomes, Martin Basker  
**Associate Professor:** James Carter, John Myers, Francois Chalifour  
**Assistant Professors:** James Jameson, David Broussard, Jason Milne, Robert Fiebe, Rachel Geller, Mark Morrison, Varun Verma  
**Instructor:** Robert Fife, Sara Mihalic, David Murley, John Fiske, David Herman, Edmond Moghadam  

The department introduces the second-year medical student to anesthesia as a specialty; helps to develop in the third-year student some concepts and technical skills related to resuscitation, airway management, and the care of the critically ill patient; the fourth-year student more intensive study in any and all phases of the department. Diverse clinical experience, research seminars, and teaching conferences, and ongoing research activities develop the postgraduate student, or resident, the knowledge and skills required of a specialist in anesthesia.

### Courses

1564 Clinical Anesthesia  
**3 A.**  
Required for junior medical students. Clinical patient care in the operating room and recovery rooms. Includes seminars, journal club conferences, small group discussion sessions.

1511 Clinical Anesthesia Seminar  
**3 A.**  

### Division of Associated Medical Sciences

**Division Head:** Peter Montgomery

The Division of Associated Medical Sciences provides for coordination of professional programs that presently include medical technologies, nuclear medicine technologies, physical therapists, and physician assistants. Flexible undergraduate programs are established 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 also required by some programs and are highly recommended by others. The student should carefully plan his or her study program 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 sequencing of courses.

This is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisors. Programs are abbreviated as follows: MT—Medical Technology; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Foreign civilization and culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Introduction to the Biological Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>16 s.h.</td>
</tr>
</tbody>
</table>

### Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>102 Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Historical Perspectives</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Physical education skills</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>414 Principles of Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>373 Principles of Animal Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>416 Principles of Chemistry Lab</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>18-19 s.h.</td>
</tr>
</tbody>
</table>

### Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>102 Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Social science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4121 Organic Chemistry I (MT, PA)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>373 Principles of Animal Biology (NMT, PA, PT)</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>5115 General Microbiology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>4111 Introduction to Medical Technology (MT)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>15-16 s.h.</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical perspectives</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Social science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2911 College Physics (NMT)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>373 Principles of Animal Biology (NMT, PA, PT)</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>3121 General Psychology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>4111 Elementary Quantitative Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>61161 Introduction to Biostatistics (MT)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>14-18 s.h.</td>
</tr>
</tbody>
</table>

The student who has satisfactorily completed the above prerequisites has satisfied the minimum academic requirements for admission to the Medical Technology, Nuclear Medicine Technology, and Physician Assistant Program. Others compete the additional requirements below.

### Junior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2911 College Physics (PT)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>373 Principles of Animal Biology (MT)</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>37103 Comparative Vertebrate Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37112 Cell, Tissue, and Organ Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>3111 Introduction to Clinical Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>15-16 s.h.</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2911 College Physics (PT)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37105 Cell Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37112 Comparative Vertebrate Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37112 Fundamental Genetics (PT)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Second Semester  
Second Semester courses include advanced courses in specific fields such as biology, chemistry, and physics. Students must complete at least 16 semester hours of these courses to earn a degree in Allied Health Education and Accreditation, and
on nuclear imaging, clinical radiopharmacy, computer applications and quantification of radionuclides in vivo and in vitro, including kinetic studies. Rotations are also established in radiomunnoassay, diagnostic X-ray, computed tomography, and ultrasonography.

The clinical year consists of these courses:

71:149 Principles of Nuclear Medicine 12 s.h.
74:180 Applied Nuclear Medicine 12 s.h.
74:180 Advanced Nuclear Medicine 12 s.h.

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Requirements for admission to the nuclear medicine technology program include:

A minimum of 60 semester hours in all course work with a minimum cumulative grade point average of 2.5;

Fulfillment of the College of Liberal Arts general education requirements in rhetoric, physical education, humanities, historical perspective, foreign civilization and culture, and social sciences. (sociology and psychology are recommended);

A minimum of 20 semester hours in three science areas to include a complete introductory course with laboratory in chemistry, physics, and zoology;

A minimum of three semester hours in mathematics to include at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the nuclear medicine technology program. Promotion from the junior year to the final clinical year is conditional upon satisfactory completion of a minimum of 60 semester hours of study in the recommended areas.

A new class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in April and the class is selected by May 1. At present, the class size is limited to eight students. Because prerequisites are becoming increasingly important, prospective students are encouraged to apply early and consult with the program director to plan an appropriate preprofessional program.

Financial Aid

Students in the nuclear medicine technology program are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time employment, in addition to government loans and grants, are made available. Financial aid on the basis of demonstrated need. Part-time work within the Department of Radiology is also available on a limited basis.

Division of Associated Medical Sciences/MEDICINE
qualities candidates for the Professional Examination Service (P.C.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

First Semester
- 60:108 Human Anatomy 4 s.h.
- 101:80 Fundamentals of Physical Therapy 3 s.h.
- 101:113 Kinesiology 3 s.h.
- 101:131 Therapeutic Physical Agents I 3 s.h.
- 101:141 introduction to Physical Therapy 1 s.h.
- 69:203 Introduction to Human Pathology 3 s.h.

Second Semester
- 60:109 Human Anatomy and Neuroanatomy 4 s.h.
- 101:85 Therapeutic Exercise I 2 s.h.
- 101:119 Clinical Observation 0 s.h.
- 101:101 introduction to Clinical Medicine I 2 s.h.
- 101:122 Emotional Aspects of Disability 1 s.h.
- 101:90 Physical Agents II 2 s.h.
- 101:160 Fundamentals of Cardiopulmonary Therapeutics 2 s.h.

Third Semester
- 101:102 Fundamentals of Orthopaedics and Clinical Sciences 3 s.h.
- 101:111 Therapeutic Exercise II 4 s.h.
- 101:113 Principles of Neurophysiology and Clinical Sciences 1 s.h.
- 101:95 Clinical Education and Rehabilitation 2 s.h.
- 101:100 Medical Injury 2 s.h.
- 101:121 Physical Therapy Management and Administration 1 s.h.
- 101:170 Prosthetics and Orthotics 1 s.h.

Fourth Semester
- 101:120 Clinical Internship 15 s.h.

Admission to Professional Program
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 professional studies to meet the requirements of the Physical Therapy Program.

Regardless of academic preparation prior to admission, all students are enrolled in the same two-year professional curriculum leading to certification in physical therapy.

To be considered for admission, the applicant must have completed at least 94 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 (eight semester hours), a complete introductory course in physics (eight semester hours), a complete introductory course in psychology (six semester hours), a general human systemic physiology course, one college-level mathematics course (three semester hours), and statistics (three-four semester hours). The student must have completed all science courses in the major departments offering the courses, and all must include at least one-fourth laboratory instruction.

The vivian must have a minimum overall grade-point average of 3.7, and should have a 3.3 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

Graduate applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission.

Undergraduates must take the GRE during the first year of professional training. Results of the examination must be mailed to The University of Iowa. Personal interviews are required.

The physical therapy admissions committee seeks the applicant who appears to be best qualified for the study and practice of physical therapy. 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 the purchase of uniforms, insurance, and course syllabi.

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 20 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experiences are recommended.

Physical therapy laboratories are available for human and animal studies.

These laboratories are well equipped with electromechanical systems and computers for measurement and analysis of musculoskeletal function (muscle strength and endurance, gait, posture, and disability evaluation), neuromuscular activity electromyography, spinal reflexes, CNS control mechanisms, and cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation). Use of extraplanetary laboratories may also be arranged.

Collaborative studies are encouraged with other departments, such as anatomy, internal medicine, pediatrics, orthopaedics, physiology, anatomy, engineering, pharmacology, and with personnel in the physical therapy clinic.

A student successfully completing the M.A. program in physical therapy will:

Be knowledgeable and demonstrate skill in the application of basic concepts in the areas of musculoskeletal, neuromuscular, and cardiopulmonary physical therapy;

Have a knowledge of the physical therapy theoretical and research literature related to a specific topic;

Be able to conduct 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 level and master’s level of physical therapy training.

Required courses:
- 101:212 Medical Instrumentation 3 s.h.
- 101:402 Analytical Scientific Literature 2 s.h.
- 101:404 ** Statistics 3 s.h.
- 101:213 Principles of Human Motion 3 s.h.
- 101:275 Evaluation of Selected Motion 3 s.h.
- 101:260 Cardiopulmonary Therapeutics 3 s.h.
- 101:280, 285, or 286 Practicum (Teaching, Research and/or Clinical)** 3 s.h.

*Maximum of six semester hours.
**May substitute 65:167 Biometrics and Bioassay or 65:161 introduction to Biostatistics and 65:162 Design and Analysis of Experiments in the Biomedical Sciences or 7P:143 introduction to Statistical Techniques and 7P:242 Selected Applications of Statistical Technique.

***These courses may be taken on a pass/fail basis.
Recommended courses:

- 7W-120 Introduction to Instructional Design and Technology 3 s.h.
- 69-203 Introduction to Human Pathology 3 s.h.
- 101-325 Independent Study in Kinesiology and Biomechanics 3 s.h.
- 27-153 Advanced Anatomy and Physiology 2 s.h.
- 27-141 Elementary Exercise Physiology 2 s.h.
- 27-352 Physiology of Exercise Laboratory 2 s.h.

Admission

To be considered for admission, the applicant must be a graduate of an approved professional program in physical therapy and must have earned an overall graduate work grade point average of 2.75 or higher. Two years of clinical experience is also considered highly desirable. The student must successfully complete the Professional Examination Service examination.

Admission to the master's degree program is granted on a basis of the student's grade-point average for previous undergraduate academic work; scores on the Graduate Record Examination (GRE) Aptitude Test; recommendation from three sources, and a personal interview. The applicant must also meet the requirements established by the Graduate College.

The applicant must complete the Graduate College application and the application for the Physical Therapy Educational Programs. The application is reviewed after the application has been accepted by the Graduate College and all aspects of the written application for the Physical Therapy Educational Programs are submitted. Deadlines for completed written applications are October 15 with notification by December 1, March 15 with notification by May 1, and May 15 with notification by July 1.

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 physical therapy. The program is described in detail under "Physical Education Field House" 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 knowledgeable and demonstrate application of basic and advanced concepts in physical therapy, including neuromusculoskeletal, neurovascular, and cardiopulmonary physical therapy;
- Have a comprehensive understanding of current as well as basic and applied scientific physical therapy literature; and
- Demonstrate original scholarship, writing, and research that will advance the understanding of physical therapy clinical practices.
10:120 Seminar in Physical Therapy
10:120 Cardiovascular Therapeutics
10:120 Musculoskeletal System
10:120 Cardiac System
10:121 Evaluation of Skeletal Neurological Disorders
10:122 Clinical Educational Program
10:123 Research in Bioethics
10:124 Electrophysiology in Neurology and Bioengineering
10:125 Thesis Proposal
10:126 Independent Study
10:127 Research in Therapeutics
10:128 Seminar in Therapeutics

Physician Assistant Program

Program director: Dennis Oliver
Medical director: Douglas W. Lucey
Faculty: geese of the College of Medicine
Associate director: Patrick M. McIntire
Associate professor: Carol King, Scott Lafferty, Craig Lumbel
Degree offered: B.S.

The physician assistant is qualified by general education, training, experience, and personal character to provide patient services under the responsibility 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, and do an appropriate physical examination, and order necessary laboratory or X-ray studies. For many common problems he or she 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 sees hospital rounds, house calls, and visits to nursing homes. He or she reviews the patient's progress, modifies the treatment or plan if necessary, and performs many other health care functions. He or she provides counseling to patients about their illness, family planning, availability of social services, well baby care, and other aspects of health care maintenance.

The Physician Assistant Program at the University of Iowa is accredited by the American Medical Association's Committee on Allied Health Education and Accreditation, approved by the Iowa Board of Medical Examiners, and a member of the Association of Physician Assistant Programs. Completion of the program qualifies students for the Bachelor of Science degree and for the opportunity to take the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the national certifying examination is a prerequisite for registration in Iowa.

The Physician Assistant Program at the University of Iowa emphasizes the practice of general medicine in settings designed to foster the use of medical care teams. In addition to education and career opportunities with private practicing physicians, a network of community-based primary care clinics has been developed in the state to serve communities with an integrated health care system. These model family practice clinics integrate the roles of primary care physicians and graduate physician assistants into the medical delivery team with physicians, health technicians, public health nurses, clinical nursing staff, and social service personnel.

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. Whenever appropriate, related subject areas are integrated to provide sequential lecture and laboratory experience. A seminar course specifically directed to the history, development, and future of the physician assistant profession is also offered during this session.

The second phase is 50-121 Introduction to Clinical Medicine for Physician Assistant Students. This full-year course involves the application of basic science knowledge to the understanding of clinical-pathologic correlations of the common and/or catastrophic disorders encountered in the major disciplines of medical practice. The student is instructed in the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken with sophomores medical students.

The third, clinical phase consists of supervised rotations of two, four, or six weeks in rotation in required and elective specialties. These clinical rotations are designed to provide the student with instruction and experience in the care of patients in a manner which facilitates effective integration of the knowledge, skills, and attitudes derived from the basic science and pre-clinical phases of the program. Inpatient clinical training is provided by The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Centers in Des Moines and Iowa City, other affiliated hospitals, the model health care clinics at Muscatine, Sioux City, Waterloo, and Des Moines, Students gain additional clinical experience through placement with selected preceptors involved in clinical work in private practice or in community hospitals.

The didactic and clinical phases of the program emphasize primary health care delivery and the use of physician assistants in a health care delivery team. The program is integrated into the teaching of the College of Medicine, thus permitting interdisciplinary activities between various medical and health care professions.

Professional Curriculum

First Year

71:125 Pharmacology for Health Sciences: Physician Assistant Students
50-105 Law and Medicine for Physician Assistant Students
60-111 Gross Human Anatomy for Physician Assistant Students
61-110 Microbiology for Physician Assistant Students
69-204 Systemic Pathology for Physician Assistant Students
69-130 Clinical Pathology for Physician Assistant Students
72-164 Human Physiology for Physician Assistant Students
99-184 Biochemistry for Physician Assistant Students
117-101 Seminar for Physician Assistant Students
50-121 Introduction to Clinical Medicine for Physician Assistant Students

Phase 1

50-105 Law and Medicine for Physician Assistant Students
50-110 Microbiology for Physician Assistant Students
60-111 Gross Human Anatomy for Physician Assistant Students
61-110 Microbiology for Physician Assistant Students
69-204 Systemic Pathology for Physician Assistant Students
69-130 Clinical Pathology for Physician Assistant Students
72-164 Human Physiology for Physician Assistant Students

Second Year

Phase III: Required clinical rotations:

70:555 Pediatrics for Physician Assistant Students 6 s.h.
75:553 General Surgery for Physician Assistant Students 6 s.h.
78:555 Internal Medicine for Physician Assistant Students 6 s.h.
115:555 Family Practice I for Physician Assistant Students 6 s.h.
115:556 Family Practice II for Physician Assistant Students 6 s.h.
66:110 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
73:100 Psychophysiology for Physician Assistant Students 4-6 s.h.

Elective clinical rotations, selected from the following:

70:102 Pediatrics Elective for Physician Assistant Students arr.
75:100 Emergency Room Elective for Physician Assistant Students 4 s.h.
78:100 Orthopedics Elective for Physician Assistant Students 2 s.h.
115:500 Family Practice Elective for Physician Assistant Students arr.
78:100 Internal Medicine Elective (Cardiology) for Physician Assistant Students 4 s.h.
62:511 Dermatology Elective for Physician Assistant Students 2 s.h.
74:5 Radiology Elective for Physician Assistant Students 2 s.h.
75:100 Surgery Elective for Physician Assistant Students 2 s.h.
78:100 Rehabilitation Elective for Physician Assistant Students 2 s.h.
79:120 Urology Elective for Physician Assistant Students 2 s.h.
66:110 Obstetrics and Gynecology Elective for Physician Assistant Students arr.
73:101 Laboratory Elective for Physician Assistant Students arr.
75:112 Nuclear Medicine Elective Unit for Physician Assistant Students 2 s.h.

Admission

To be eligible for admission to the Physician Assistant Program, the applicant must have completed at least 90 semester hours of college level study, including:

College of Liberal Arts general education requirements, rhetoric, physical education, cultural history, foreign culture and civilization, and social sciences.

Complete introductory courses in inorganic and organic chemistry; and

A complete introductory and at least one advanced course in zoology or animal biology.

It is also strongly recommended, although not required, that the applicant's background include analytical geometry, beginning calculus, and physics.

The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college course work undertaken. The admissions committee gives special attention to the applicant's performance in science courses. In the past, the successful applicant has had a cumulative and science grade-point average of 3.0, a total of 123 semester hours of college credit of which 55 semester hours were in 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 involving direct patient contact receive preferential considerations.

The committee will request interviews with the most qualified applicants.

In the event a student is not admitted into the Physician Assistant Program, he or she should have been advised to pursue a course of study which is applicable to a baccalaureate degree, most commonly in the areas of biology, chemistry, biochemistry, or zoology.

A new class begins the last week in May. Applications are accepted beginning one year in advance, and close May 15. Each applicant must complete the University of Iowa application and the Physician Assistant Program supplemental application and submit at least three letters of recommendation.

Expenses

In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment, approximately $550. Microscopes are not required.

Courses

115:101 Physician Assistant Clinical Second Year 6 s.h.
115:121 Seminar for Physician Assistant Students 0.3 s.h.
99:123, 130, 193 and 195 6 s.h. Outpatient training and projects for students in the Physician Assistant Program.
115:200 Advanced Emergency Medicine for Physician Assistants 4 s.h.
115:200 Advanced Emergency Medicine for Physician Assistants 4 s.h.
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115:260 Advanced Emergency Medicine for Physician Assistants 4 s.h.
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Financial Assistance

Financial assistance is available to all students admitted to the doctoral program in biochemistry.

Admission

The graduate program in biochemistry is sufficiently flexible to accommodate students with backgrounds in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year college-level courses in organic and physical chemistry, biology, and physics, and mathematics through calculus. Students with demonstrated ability may make up deficiencies after enrollment.

Beyond the general Graduate College admission requirements (see the Graduate College section of the Catalog) minimum requirements of the department include one undergraduate grade-point average of 3.6, a 3.0 average in science and mathematics courses, and an acceptable score on the verbal, quantitative, and analytical portions of the Graduate Record Examination (GRE) Aptitude Test.

Courses

9500: Cooperative Education Internship 0.5 h.
181: Senior Undergraduate 0.1 h.
181: Senior Undergraduate 0.1 h.
181: Senior Undergraduate 0.1 h.
181: Senior Undergraduate 0.1 h.
901: Microbiology 3.0 h.
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The Department of Dermatology instructs medical students and train dermatology residents in the care of patients with skin disease, and provides opportunity for the development of research skills in the field of dermatology.

This is one of very 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 10 one-hour lectures. A good cross-section of patients is available, due to the mixture of urban and clinic patients, including a large number referred from the Student Health Service. Additional patients are seen by the nearby Veterans Administration Medical Center.

Various electives are available for fourth-year medical students, including further clinical experience, dermatological research, and special studies.

Courses
621 Clinic Dermatology
2 h.
Basic dermatology. Most dermatology summer lecture series, independent study material, clinical experience.
623 Dermatology Elective
ar.
Fourth-year medical students spend four weeks in advanced clinical experience, dermatological surgery, and special assignments.
614 Research in Dermatology
ar.
Dermatology Elective for Physician Assistant
ar.
General principles of medical research; clinical or laboratory projects, individual study.
6245 Special Studies in Dermatology
ar.
6260 Special Studies of Cases
ar.
Dietetic Internship

Department Director: Rose Ann Stippi
Internship Director: Suzanne Keyry

University of Iowa Hospitals and Clinics offers a dietetic internship program which qualifies graduates to take the American Dietetic Association (ADA) registration examination. The program is fully accredited by the ADA. Clinical Dietitians and Food Service System Managers of the Dietary Department provide the clinical teaching in the program. Courses within the program are administered by The University of Iowa College of Medicine. The following are required:

50:201-202 Dietetics Seminar 1 h.
50:203-204 Clinical Dietetics 4-6 h.
50:205-206 Projects in Dietetics 1 h.
50:209-210 Hospital Dietary Administration 4-6 h.

The following are recommended electives:
50:207-208 Dietetic Research
65:215 Comparative Nutrition 2 h.
65:216 Analysis of Food Service Systems 2 h.
65:211 Nutrition of the Child 2 h.

Students generally complete the program with 15-17 semester hours of graduate credit. University Hospitals and Clinics awards a certificate to graduates of the program. Check with the director of the program for the specific requirements to be met for graduation.

The Family Practice Program was initiated in response to the need for more primary-care physicians in Iowa and throughout the nation. A major goal of the department is to develop clinicians who will be effective in rural or small community settings. The department is committed to improving the health of rural and underserved populations.

Additional clinical experience is included in the internship program which qualifies graduates to take the American Dietetic Association (ADA) registration examination. The program is fully accredited by the ADA. Clinical Dietitians and Food Service System Managers of the Dietary Department provide the clinical teaching in the program. Courses within the program are administered by The University of Iowa College of Medicine. The following are required:

50:201-202 Dietetics Seminar 1 h.
50:203-204 Clinical Dietetics 4-6 h.
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The Family Practice Program was initiated in response to the need for more primary-care physicians in Iowa and throughout the nation. A major goal of the department is to develop clinicians who will be effective in rural or small community settings. The department is committed to improving the health of rural and underserved populations.
The University's Center for Health Services Research became the research division of the Graduate Program in Hospital and Health Administration in 1981.

Master of Arts

The curriculum for the M.A. degree in hospital and health administration requires two years of full-time study. It is aimed at developing the knowledge, attitudes, and skills which are required to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, planning agencies, and related health organizations.

The program is founded upon an interdisciplinary approach which includes exposure to the theoretical and applied aspects of health systems management. In the first year, courses are designed to familiarize students with the social, political, economic, and financial environments of hospitals and health care institutions. Concepts, tools, and techniques for effective and efficient managerial decision making, planning, and control are introduced.

In the second year, the curriculum stresses the application of management concepts and techniques according to the special interests and career objectives of individual students.

The program plays an active role in assisting interested students to identify and secure postgraduate administrative fellowships and residencies in health care organizations.

Although a thesis is optional for the master's degree, students who wish to pursue doctoral studies are encouraged to engage in research leading to preparation of a thesis.

The normal program of study leading to the master's degree consists of 54 semester hours equivalent to 36 courses. All master's students must complete 16 required courses. Students must also demonstrate core competence in disciplines and fields of knowledge.

The courses are as follows:

80:101 Introduction to Health Care Organization 3 s.h.
80:201 Health Services Administration I 3 s.h.
80:202 Health Services Administration II 3 s.h.
80:203 Hospital Administration Administration III 3 s.h.
80:304 Hospital Administration IV 3 s.h.
80:206 Issues in Health Management and Policy 3 s.h.
80:210 Accounting in Health Administration 3 s.h.
80:212 Health Economics I 3 s.h.
80:213 Health Economics II 3 s.h.
80:215 Financial Management of Health Institutions I 3 s.h.
80:216 Financial Management of Health Institutions II 3 s.h.
Health Services Management and Policy
80-251 Medical Care Programs
80-253 Seminar: Health Services Management
80-255 Seminar: Contemporary Health Issues
80-256 Seminar: Contemporary Health Issues II

Research Methodology and Statistics
80-261 Health Services Research I
80-262 Health Services Research II
80-263 Independent Research Project

In addition, the student must complete one of the following statistics sequences:

General Measurement/Statistics Sequence:
7P-243 Intermediate Statistical Methods
7P-244 Correlation and Regression
80-765 Application of Multivariate Statistical Methods

Econometrics Sequence
6E-183 Statistical Methods in Economics
8E-221 Econometrics I
80-365 Application of Multivariate Statistical Methods

Sociology Sequence
34-214 Elementary Statistics and Date Analysis
34-216 Intermediate Statistics and Date Analysis
80-265 Application of Multivariate Management Methods

Minor Field
The student must complete at least 12 semester hours in a related field such as sociology, political science, psychology, management science, or economics.

Doctoral students are required to complete at least 90 semester hours of graduate work, pass comprehensive examinations, and submit an acceptable dissertation.

In addition to satisfying the specific requirements of the program, the doctoral student must satisfy the requirements of the Graduate College.

Center for Health Services Research
The Center for Health Services Research (CHSR) is the interdisciplinary focus for research on health and health care sciences at The University of Iowa. Faculty and staff investigate questions regarding the organization, delivery, and financing of health care.

Center for Health Services Research
80-011 Introduction to Health Care Organization
3 s.h.

80-991 Health Services Administration I
3 s.h.

80-992 Health Services Administration II
3 s.h.

80-993 Health Services Administration III
3 s.h.

80-994 Health Services Administration IV
3 s.h.

80-995 Health Services Administration V
3 s.h.

80-996 Health Services Administration VI
3 s.h.

80-997 Health Services Administration VII
3 s.h.

80-998 Health Services Administration VIII
3 s.h.

80-999 Health Services Administration IX
3 s.h.

80-201 Health Services Administration I
3 s.h.

80-202 Health Services Administration II
3 s.h.

80-203 Health Services Administration III
3 s.h.

80-204 Health Services Administration IV
3 s.h.

80-205 Health Services Administration V
3 s.h.

80-206 Health Services Administration VI
3 s.h.

80-207 Health Services Administration VII
3 s.h.

80-208 Health Services Administration VIII
3 s.h.

80-209 Health Services Administration IX
3 s.h.

80-210 Health Services Administration X
3 s.h.

80-211 Health Services Administration XI
3 s.h.

80-212 Health Services Administration XII
3 s.h.

80-213 Health Services Administration XIII
3 s.h.

80-214 Health Services Administration XIV
3 s.h.

80-215 Health Services Administration XV
3 s.h.

80-216 Health Services Administration XVI
3 s.h.

80-217 Health Services Administration XVII
3 s.h.

80-218 Health Services Administration XVIII
3 s.h.

80-219 Health Services Administration XIX
3 s.h.

80-220 Health Services Administration XX
3 s.h.

80-221 Health Services Administration XXI
3 s.h.

80-222 Health Services Administration XXII
3 s.h.

80-223 Health Services Administration XXIII
3 s.h.

80-224 Health Services Administration XXIV
3 s.h.

80-225 Health Services Administration XXV
3 s.h.

80-226 Health Services Administration XXVI
3 s.h.

80-227 Health Services Administration XXVII
3 s.h.

80-228 Health Services Administration XXVIII
3 s.h.

80-229 Health Services Administration XXIX
3 s.h.

80-230 Health Services Administration XXX
3 s.h.

80-231 Health Services Administration XXXI
3 s.h.

80-232 Health Services Administration XXXII
3 s.h.

80-233 Health Services Administration XXXIII
3 s.h.

80-234 Health Services Administration XXXIV
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80-235 Health Services Administration XXXV
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80-236 Health Services Administration XXXVI
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80-237 Health Services Administration XXXVII
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80-238 Health Services Administration XXXVIII
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80-239 Health Services Administration XXXIX
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80-240 Health Services Administration XXXXI
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80-241 Health Services Administration XXXXII
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80-242 Health Services Administration XXXXIII
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80-243 Health Services Administration XXXXIV
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80-244 Health Services Administration XXXXV
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80-245 Health Services Administration XXXXVI
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80-246 Health Services Administration XXXXVII
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80-247 Health Services Administration XXXXVIII
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80-248 Health Services Administration XXXXIX
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80-249 Health Services Administration XXXXI
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80-250 Health Services Administration XXXXII
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80-251 Health Services Administration XXXXIII
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80-252 Health Services Administration XXXXIV
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80-253 Health Services Administration XXXXV
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80-254 Health Services Administration XXXXVI
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80-255 Health Services Administration XXXXVII
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80-256 Health Services Administration XXXXVIII
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80-257 Health Services Administration XXXXIX
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80-258 Health Services Administration XXXXI
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80-259 Health Services Administration XXXXII
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80-260 Health Services Administration XXXXIII
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80-261 Health Services Administration XXXXIV
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80-262 Health Services Administration XXXXV
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80-263 Health Services Administration XXXXVI
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80-264 Health Services Administration XXXXVII
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80-265 Health Services Administration XXXXVIII
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80-266 Health Services Administration XXXXIX
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80-267 Health Services Administration XXXXI
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80-268 Health Services Administration XXXXII
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80-269 Health Services Administration XXXXIII
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80-270 Health Services Administration XXXXIV
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80-271 Health Services Administration XXXXV
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80-272 Health Services Administration XXXXVI
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80-273 Health Services Administration XXXXVII
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80-274 Health Services Administration XXXXVIII
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80-275 Health Services Administration XXXXIX
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80-280 Health Services Administration XXXXV
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80-281 Health Services Administration XXXXVI
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80-282 Health Services Administration XXXXVII
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80-283 Health Services Administration XXXXVIII
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80-284 Health Services Administration XXXXIX
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80-285 Health Services Administration XXXXI
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80-286 Health Services Administration XXXXII
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80-287 Health Services Administration XXXXIII
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80-288 Health Services Administration XXXXIV
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80-289 Health Services Administration XXXXV
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80-290 Health Services Administration XXXXVI
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80-291 Health Services Administration XXXXVII
3 s.h.

80-292 Health Services Administration XXXXVIII
3 s.h.

80-293 Health Services Administration XXXXIX
3 s.h.
MEDICINE/Microbiology

medical training. In the first semester trainees take courses in biochemistry, microbiology, immunology, and virology. In the second semester they take courses in physiology, immunology, microbiology, and general pathology. The first semester of year two is devoted to the study of pharmacology; systems pathology, microbiology, and community health sciences. During the summer between the first and second year, trainees engage in biomedical research under the direction of a faculty sponsor. For the second semester of the second year, trainees are enrolled in an introduction to Clinical Medicine sequence which integrates the development of clinical knowledge, and skills necessary for building and maintaining competence as a physician. This semester provides information and practice in history-taking, physical diagnosis, and laboratory diagnosis, as well as insight into major health problems and needs. The Introduction to Clinical Medicine sequence is followed in the summer of the second year by 12 weeks of clinical clerkships in internal medicine, pediatrics, obstetrics and gynecology, or medical specialties.

In years three, four, and five and six, the extent necessary, six trainees are enrolled full time in the graduate department which they are asked to select by January of the second year. During this time, trainees are provided with academic and research experiences necessary to fulfill Graduate College requirements for the M.D. degree and appropriate to their development as independent investigators. This scientific training is directly supervised by the faculty of the graduate medical department. During this phase of training, clinical contact is maintained through a formal weekly program of clinical research conferences under the guidance of the Associate Director for Clinical Studies.

As soon as trainees complete the graduate component of their training, they return to the College of Medicine to begin a final clinical year. This year serves two important purposes. First, it allows trainees to experience the clinical environment and consider the problem of graduate clinical science and apply it to problems of human disease. Second, it permits the trainee to review and develop further the clinical skills acquired in the second year of the program. On completion of 36 weeks of clinical clerkships, trainees are awarded the M.D. and Ph.D. degrees.

Financial Support

Trainees admitted to the first year of the program compete for stipend and full tuition awards provided by a Medical Scientist Training Program grant to The University of Iowa from the National Institutes of Health (NIH). Support from this grant and institutional sources is continued for up to six years, provided 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 departmental training awards beginning at the end of the second year. Match program and continuing for four years. Support for trainees admitted to advanced standing in the program is arranged on an individual basis.

Eligibility

Applicants must meet requirements for admission to the College of Medicine and Graduate College of The University of Iowa. It is expected that trainees will have completed requirements for a bachelor’s degree at an accredited academic institution. In addition to outstanding academic standing, applicants should demonstrate aptitude for and commitment to specific research, usually through productive research experience as undergraduates. Applications are accepted from students requesting admission to the first year of the program. Consideration will also be given to applications for admission to advanced standing from individuals currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures

The University of Iowa College of Medicine is a participant in the American Medical College Admissions Program (AMCAS). Program applicants should instruct AMCAS to forward their credentials to the College of Medicine as soon as possible after June 15. At the same time, applicants should request a separate Medical Student Training Program application from the Program Office, 5-569 Brown Science Building, The University of Iowa, Iowa City, Iowa 52242. Applications to the Medical Scientist Training Program are reviewed by the Program Selection Committee after AMCAS applications are received.

The deadline for receipt of applications is December 1. It is strongly recommended that all applications be submitted as early as possible to facilitate review by both the College of Medicine Admissions Committee and the Program Selection Committee. The early decision plan of the College of Medicine for out-of-state residents is waived for this program. Equal opportunity is given all applicants regardless of their state of residence.

Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Microbiology

Department head: Irving D. Crawford
Faculty: Phenomenal Reddy, M.D.; Plaxton, John L.; Jeffrey, J.; Luber, John; Luber, M.D.; G. James, Thomas J.; Luber, Ph.D.; Rudolph, Ph.D.; Sauer (Director and Microbiology, Louis G. McCauley); Williams, John; Daniel M. Lukoff (Microbiology, Richard J. Lyne (Pathobiology), Allen J. Markowitz, Em. M. Scott, Donald P. Sherry
Associate professors: George E. Sklar, Charles D. Chen, Jose E. Rodrigues, Mary F. Shen, George W. Sohnsen, Peter H. Storz, member: John W. Vesper, assistant: Jonathan Brown Pegg, Lucy Danes, Sugihara

Undergraduate Program

See "Microbiology" in the "College of Liberal Arts" section of the Catalog.

Graduate Program

The objectives of the graduate program in microbiology are to help students become highly qualified in research and in the teaching of microbiology. These six areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, medical mycology, and animal virology. Several of these specialized areas involve interdisciplinary training within and outside the department, so students receive broad experience during their course of study. Students working for the Ph.D. degree may obtain an M.S. degree during their graduate career, or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to assist in teaching in the department during their course of study.

Incoming students choose a research supervisor 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 the campus, affording 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

A candidate for the M.S. degree will be required to take a minimum of 12 semester hours in the major required courses in three of the six different specialties and physiology, and cytology. A student may substitute a course taken previously (at the UI or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or course selections will depend on the interests of the student and the advice of the examining committee. The thesis must be defend satisfactorily in an oral examination.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of four specialties (of the six sub-specialties available in microbiology) or 15 semester hours of course work in two different areas. A student may substitute a course taken previously (at the UI or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Other requirements are to pass a comprehensive examination and to write a thesis based on the student's research. The thesis must be defended satisfactorily in an oral examination.

Facilities

The department shares the Bowen Science building with Anatomy, Biochemistry, Pharmacology, and Toxicology. Adequate space and excellent equipment are available for teaching and research.

Admission

Prospective graduate students should consult the Graduate College catalog for admission requirements of the Graduate College. Completed applications for admission include a review and formal vote by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (organics, inorganic, quantitative analysis), mathematics (calculus and physics). Students admitted without the above coursework must take the Graduate Record Exam before admission to the graduate program in microbiology.

Courses

0143 Medical Microbiology

Principles and methods essential to study of microorganisms, their isolation and identification, microorganisms involved in infectious diseases, current control and immunity. Microbiological investigation of food and dairy products. Credit: 3 semester hours.

0146 Microbiology for Physician Assistant

Introductory course in medical microbiology, with emphasis on the more common infections encountered in clinical practice, based on current literature. Credit: 3 semester hours.

0147 Survey of Terminology

Interdisciplinary survey of the systems of nomenclature of cellular microbiology and their application to clinical medicine, including classification, systematics, and taxonomy. Credit: 3 semester hours.

0157 General Microbiology

Fundamentals of microbiology, microbial physiology, virology, bacteriology, mycology, and virology. Credit: 3 semester hours.

0158 Pathogenic Bacteriology

Bacterial diseases, with emphasis on the isolation, identification, and control of major bacterial diseases. Credit: 3 semester hours.

0159 Clinical Pathology

Examination of the pathology of the clinical laboratory. Credit: 3 semester hours.

0160 Microbiology Laboratory

Introduction to the laboratory methods used in the study of pathogenic bacteria. Credit: 3 semester hours.

0161 Preclinical Microbiology

The use of preclinical laboratory methods for the study of pathogenic bacteria. Credit: 3 semester hours.

0162 Oral Microbiology

Introduction course covering oral microbiology, immunology, oral disease and treatment, and oral pathogenesis. Credit: 3 semester hours.

0164 Medical Microbiology

Student work on research projects under supervision of a faculty member. For undergraduate students with sufficient background. Credit: 3 semester hours.

0166 Medical Microbiology

Clinical microbiology. Credit: 3 semester hours.

0168 Cellular Microbiology

Fundamental and practical training in viral isolation and cultivation. Credit: 3 semester hours.

0169 Laboratory Methods

Introduction and training in isolating and identifying bacteria and fungi from clinical materials. Credit: 3 semester hours.

0172 Lectures in Immunology

Colloquium on the fundamentals of immunity, allergic responses, and immunodeficiency. Credit: 3 semester hours.

0173 Medical Laboratory Techniques

Basic laboratory methods used in the study of viruses. Credit: 3 semester hours.

0174 Laboratory Methods

Methods of analysis and interpretation of laboratory data. Credit: 3 semester hours.

0176 Electron Microscopy

Basic concepts and techniques. Credit: 3 semester hours.

0178 Electron Microscopy

Special techniques in electron microscopy. Credit: 3 semester hours.

0180 Animal Pathology

Basic methods of experimental infection, the role of vaccines in disease, the methods of chemical, physical, and biological treatments of infected animals and plants. Credit: 3 semester hours.

0181 Medical Microbiology

Methods used in the study of fungi and parasitic organisms. Credit: 3 semester hours.

0183 Medical Microbiology

Methods used in the study of fungi and parasitic organisms. Credit: 3 semester hours.

0185 Microbiology Laboratory

Methods used in the study of fungi and parasitic organisms. Credit: 3 semester hours.

0187 Medical Microbiology

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0191 Medical Laboratory

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0209 Medical Laboratory

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0273 Medical Laboratory

Methods used in the study of fungi and parasitic organisms. Credit: 3 semester hours.
Neurology

Department Head: Maurice V. Van Allen

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, have long been a significant function of the department.

The department offers clinical and research training in third- and fourth-year medical students, contributing to the training of the Doctor of Medicine degree. An active three-year approved residency program qualifies physician trainees for board certification in neurology in a major subject of departmental activity: experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropathology is part of this training. The department also offers research opportunities in one of the many disciplines to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the staff center on sleep disorders, diencephalic listening, behavioral abnormalities based on disease of the nervous system, electrophysiological correlates of disease, proteins and glial growth factor of the central nervous system, biochemistry of the anticonvulsant drugs, investigation of human neurotransmitter release, peripheral neuropathy, cerebrovascular disease, and movement disorders.

Courses

4611 Clinical Neurology 2.5 h Hourly rating: 50.0 student learning ratings in any group, or management of ambulatory patients. Third year.

4612 Stroke in Neuro-Ophthalmology 8.5 h Same as 4611.

4616 Principles of Neurology and Clinical Sciences 1.5 h Lectures, demonstrations, and case presentations of neurological disorders, anatomy of system studied, pathophysiological bases of disease, treatments, and rehabilitation demonstrated. Same as 4611/112.

4621 Research Neurology 1.5 h

4622 Introductory Neuropathology 3.0 h

4623 Introductory Neuropsychological Assessment 3.0 h

Course Work for M.D. Students

The courses in obstetrics and gynecology are designed to give M.D. students a comprehensive understanding of reproductive medicine. This is done through a series of didactic lectures, important post-graduate assignments, ward rounds, teaching seminars, and small group discussions.

The third-year clerkship (664 Clinical Obstetrics and Gynecology) gives the student core knowledge, skills, and attitudes needed to provide primary health care to women patients.

The department offers fourth-year students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology, in addition to clerkships at The University of Iowa Hospitals and Clinics, these electives include rotations at Braeburns Park County Hospital, Des Moines; Crocker Clinic and Conway Memorial Hospital; Monroe, Louisiana; Medical Associates, Dubuque, The Gundersen Clinic, LaCrosse, Wisconsin, and Orlando-Regional Medical Center, Orlando, Florida.

Residency Program

The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

The resident is assigned to the various divisions and clinical services of the department and cares for both hospital residents and outpatients. Additional training is obtained in prenatal clinics in Waterloo, Des Moines, Muscatine, and Des Moines. During the final two years, the resident spends time at Iowa Methodist and the Department of Obstetrics in Des Moines, and at St. Luke's Hospital in Des Moines. The resident is trained in normal and abnormal obstetrics, gynecologic surgery, office gynecology, endocrinology, oncology, family planning, and endoscopic procedures.

Fellowships

The department offers two-year fellowships in reproductive endocrinology (one), reproductive endocrinology (two), and maternal-fetal medicine (two). Each achieves clinical and research activities. After completion fellows are eligible for the examinations of the American Board of Obstetrics and Gynecology leading to certification of specialization competence.

Courses

51044 Clinical Obstetrics and Gynecology 4.0 h

Clinical Obstetrics is designed to provide in-depth special history taking and physical examination of obstetric and gynecologic patients, as well as knowledge of the techniques of obstetric and gynecologic surgery, screening for malignancy, and the use of contraception, family planning, and techniques for family collection of gynecologic cancer.

51045 Advanced Obstetrics Clerkship Iowa City 2.0 h

Students manage patients in the Iowa City Clinic, a teaching hospital. This allows opportunity for inpatient and outpatient care, in addition to the diagnosis and management of various obstetrical and gynecological problems. Teaching of students includes seminars in the diagnostic and therapeutic management of obstetrics and gynecology.

51046 Advanced Obstetrics Clerkship Des Moines 2.0 h

51047 Advanced Gynecology Clerkship 1.5 h

51048 Gynecological Oncology 1.5 h

51049 Reproductive Endocrinology 1.5 h

51050 Advanced Gynecological Oncology Clerkship, Wisconsin 1.5 h

51051 Advanced Obstetric Clerkship Brompton Hospital, Des Moines 2.0 h
Orthopaedic Surgery

Department Head: Richard M. Cooper
Faculty: Jeffrey M. Bloom, George W. Dickerson, Robert A. Brandt, Michael J. Donahue, Michael E. Cooper, Garrett J. B. Williams, David A. Jonsson, Mark F. S. Franklin, William J. H. Nuttall, Joseph A. Buckwalter, Charles D. Clark, Thomas D. Johnson, and others.

The department offers two types of postgraduate training—a five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery and outpatient related to the neuromusculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopaedic careers.

The Clinical Program

Trainees enter this program through the National Internship Matching Program directly out of medical school. 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 in medicine, pediatrics, neurology, surgery specialties, intensive care, anesthesiology, and other services. During the following years, residents gain experience in trauma, children's orthopaedics, adult orthopaedics, muscular-skeletal disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science related to orthopaedics. The residents take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly terminal covers biomechanics, kinesiology, and selectibe subjects.

Program for Full-Time Academic Orthopaedics

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 feels he or she is related to the musculoskeletal system, and may be done in one of the departments or at a basic science department.

Departmental Laboratories

The orthopaedics laboratories deal with problems in these major subject areas:

- Biochemistry
- Immunology
- Bone metabolism
- Ultrastructural studies on normal bones, cartilage, tendons, ligaments, and joints altered by experimental and disease.
Tissue transplant, radioactive isotopes, and metastatic bone disease—skull, bone, and peripheral transplantation, -kate alkal physiology, qualitative and quantitative aspects of histology, mineral composition, and bone density, effect of in vivo and in vitro metabolic bone 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 100 beds, an outpatient clinic, a specialty library, a specialty radiology unit, a brace shop, and physical therapy facilities.

Physicians in the outpatient clinic see approximately 100 patients a day.

Specially clinics deal with such problems as scoliosis, club foot, congenital dislocated hips, neurosurgical disease, metabolic diseases, neck, back, amputations, hips, knees, hands, and trauma.

Approximately 1,500 major operations are performed each year under auspices of the department.

The department provides consulting service to the Hospital School for Handicapped Children, State Schools for Crippled Children, and state schools for the mentally retarded.
Pathology

Department Head: Richard G. Lynch

Fellows: professors Fred R. Don, Michael H. Hart, Thomas H. Kent, Andrew P. Kastler, Wynvyn G. Cuneo, George D. Pene, Donald E. Poland, G. Scott Van Stigt, Ronald G. Simonis


Residency Program

The department offers basic pathology courses to health science students, a clinical training program in medical technology, a master's degree program, residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and neuropathology, a postdoctoral training program in clinical chemistry fellowship training in pathology subspecialties, and postdoctoral research training in cellular and molecular pathology.

Clinical Training 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, and zoology, and technological education. The program includes work with medical and dental degrees.

The M.S. program is flexible, but the department emphasizes two tracks: one to provide a research background for academically oriented resident physicians and for medical and dental students, the other for medical technologists who wish to advance their training, usually by subspecialization in a laboratory medicine.

M.S. students participate in teaching, patient care, and research through the instructional programs of the department, the service laboratories of the department and 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 1200, and a personal interview. A brochure describing the departmental course requirements and giving examples of the major academic tracks is available on request.

Residency Program

The department is approved for 21 residency positions in pathology, covering a training span of up to five years.

Graduates are designated to utilize the patient population of University Hospitals and Clinics and the Iowa City Veterans Administration Medical Center.

There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytopathology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion center. Adequate opportunity is afforded for concentrated study in most pathology subspecialties.

The department also offers a postdoctoral training program in clinical biochemistry for technicians and chemists. This program is approved by the American Board of Clinical Chemistry.

In addition, the department provides five 12-month externships and a variable number of clerkships for predoctoral students in any of the areas of anatomic and clinical pathology.

Postdoctoral Training

The Department of Pathology offers a program in hematology for physicians who have completed at least two years of residency training in pathology. The postdoctoral traineeship covers one year of clincial work and one year of laboratory research in basic hematopathology.

The department also provides postdoctoral training in immunology, neuropathology, bacteriology, virology, heredofamilial, cancer biology, and clinical microbiology, as well as in other areas of cellular and molecular pathology. These positions are open to individuals with M.D., Ph.D., or M.D. degrees.

Facilities

The Department of Pathology administers the clinical laboratories of the University of Iowa Hospitals and Clinics. Most of these laboratories are located in 40,000 square feet of newly constructed laboratories that were occupied at the beginning of 1984. The Department of Pathology has individual research laboratories and core facility laboratories located in the Medical Research Center, Medical Laboratories, and the Veterans Administration Medical Center. The department is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. Also available are the College of Medicine facilities for recombinant DNA studies, protein structure, hybridoma production, flow cytometry, and laboratory animal care.

Courses

811 Introduction to Medical Technology 1.00

Survey of the role of medical technologists in various laboratory settings and their relationship to the health team and public health programs. Offered every spring semester, 219 credits.

814 Principles of Human Pathology 1.00

Course emphasizing terms, mechanisms, and principles of disease, and the clinical and pathological relations to normal tissue. Spring semester, offered every odd semester.

8112 Medical Jurisprudence

Lectures and discussions based on student research in the library or course syllabus. Great lectures involving law, crimes, forensic, and public health. Offered to medical students and other students by arrangement. Offered spring semester.

8115 Medical Technology Procedures 1.00

Theory and practice in clinical laboratory science.

8117 Immunology for Medical Technologists 1.00

Theory and practice of the immunological methods used in the areas of blood banking, immunocompetence, and quality assurance. Offered fall semester.

8118 Introductory Immunopathology 1.00

Theory and practice of the immunological methods used in the areas of blood banking, immunocompetence, and quality assurance. Offered fall semester.
for rational decisions concerning the
personal use of drugs.

The department offers research training in all areas of pharmacology and
toxicology at the predoctoral and
postdoctoral levels, in preparation for career opportunities in teaching,
Preventive Medicine and Environmental Health

Department Head: Peter Bokhari

Preventive medicine relates to the individual patient when knowledge and techniques from biological, medical, social, and behavioral science are applied to prevent disease or its progression. It relates to the health of the entire community when the knowledge and skills of medical and allied sciences are applied in an organized community effort to maintain and improve the health of populations.

Department research and teaching activities are conducted within three primary divisions: biostatistics, epidemiology, and occupational and environmental health. Faculty of the Division of Biostatistics work closely with both clinical and basic science investigators throughout the Health Center in the initial design and subsequent analysis of research projects and also work independently in studying specific problems of statistical concern. Activities of the epidemiologic faculty are concerned with health care organization and delivery, risk factors for disease in the general population, and special 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 which are related to disease and have particular interest in the health problems of agricultural workers.

Examples of ongoing departmental research and activities include: The Stites Health Registry of Iowa, which records in central files all data on all cases of cancer which occur in residents of Iowa; the Agronomic Toxicology, which examines health problems and needs of a representative segment of Iowa's elderly; the development, evaluation, and field testing of vaccine against streptococcal and urinary tract infection; the University Occupational Health Service; the Community Pesticide Project; and the Biostatistical Consulting Service.

The department sponsored the development of the Institute of Agricultural Medicine and Environmental Health, the first agency in the western hemisphere dedicated to the study of the occupational health problems of the agricultural worker.

All departmental programs are enhanced through affiliations with the University Hygienic Laboratory, the Environmental Health Service, the Graduate Program in Hospital and Health Administration, and the Health Services Research Center.

Graduate Programs

The master's program offers a degree with emphasis in environmental health, microbiology, or community health, which is followed by those who already are health professionals. The Ph.D. program is available with an emphasis in epistemology, microbiology, or environmental health.

While pursuing a degree program, students are expected to maintain a 3.0 grade-point average. In addition, students receiving more than six semester hours of C grades or lower in departmental course work will be dismissed from the program.

A joint master's option exists between the Urban and Regional Planning program and Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. or an M.S. in Planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.

Institute of Agricultural Medicine and Occupational Health

The Institute of Agricultural Medicine and Occupational Health is housed in the Agricultural Medicine Research Facility on the Oakdale Campus. Research, teaching, and extension activities concern the safety and health problems of Iowa's industrial and agricultural workers. Areas of study include 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 assistantships, fellowships, and tuition grants are available within the department.
Graduate Programs

The M.S. program in radiation biology emphasizes the technical aspects and serves as a training ground for students whose major interest is in another 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. is the c.a. 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. Others major 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 types of instruments and techniques. It is recommended that a candidate for the Ph.D. have a fair knowledge of scientific French or German and competence in biological statistics or computer programming before taking the final examination. Students must have at least three years of practical experience as a teaching assistant and at least one as a research assistant. An assistant must be required and no aademic credit given.

Special Programs

Postdoctoral training is available by arrangement with the program chairman and individual faculty members.

Facilities

The Radiation Research Laboratory has two X-ray generators and other radiation sources. The C60 beam has a 40-degrees angular divergence, which is small enough that the beam falls from the C60 gamma source and the linear accelerators in the Department of Radiology and the reator of the Biology Division at Argonne National Laboratory. The Radiation Research Laboratory has a variety of radiation detectors and counting devices, including genetic and tissue sensitization counters and a small animal whole-body counter. The laboratory also has an electron spin resonance spectrometer, ultraso phemietrometers, an automatic cell counter and particle size, and facilities for precipitating a variety 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 Aids

Graduate students are supported as research assistants when possible from funds available through research grants and contracts, or as teaching assistants paid from departmental funds. Some awards are also available to graduate students and postdoctoral fellows through the U.S. P.H.S. Research Service Award program to support training in biomedical radiation research. Individual postdoctoral awards are also available and are applied for jointly by the candidate and his or her faculty sponsor.

Courses

77-125 Introduction to Radiobiology and Radiopathology 4 s.h.
77-128 Radiobiology and physiologic effects of ionizing radiations, properties and uses of radiopaque, organic radiopaque, and metal for protection of personnel and patients. Radiopaque, 27-131 radiopaque, and Computation of individual sensitization. 4 s.h.
77-129 Environmental and Radiological Health 4 s.h.
77-130 Environmental health and related problems in medical, educational, institutional, industrial, and public health fields. Provides an opportunity for students of radiological sciences, including radiological physicists and associated professionals. 4 s.h.
78-130 Special Topics: Advanced Undergraduate 4 s.h.
For undergraduates presently interested in a career in the radiation sciences, meetings and laboratory experience. Arrangements should be made with the instructor. Offered fall semesters. 4 s.h.
78-130 Special Topics: Advanced Undergraduate 4 s.h.
For undergraduates presently interested in a career in the radiological sciences, meetings and laboratory experience. Arrangements should be made with the instructor. Offered spring semesters. 4 s.h.
78-131 Summer Research Laboratory 1 s.h.
Research reports by students and faculty and by speakers from outside the program. Offered on satisfactory-unatisfactory basis only. 1-6 credit hours. 4 s.h.
78-208 Seminar Research 1 s.h.
Research reports by students and faculty and by speakers from outside the program. Offered on satisfactory-unatisfactory basis only. 1-6 credit hours. 4 s.h.
77-211 Physics of Radiation * 4 s.h.
Characteristics of x-ray beams, nuclear activation, and radiological therapy. Offered fall semesters of odd years. Prerequisite: eight semester hours of physics, 77-108, or equivalent. 4 s.h.
77-228 Human and mammalian radiobiology 4 s.h.
Effects of radiation on cancer cells and other mammalian systems and bone-marrow transplantation; effects of radioresistance and radiation treatment. Offered spring semester of odd years. Prerequisite: eight semester hours of physics, 77-108 or equivalent. 4 s.h.
77-233 Cellular Radiobiology 4 s.h.
Radiation and cell growth, multiplication, differentiation, and development as related to radiation effects. Offered spring semester of even years. Prerequisite: 77-122 or equivalent. 4 s.h.
77-234 Radiobiology 1 s.h.
4 s.h.
77-236 Radiobiology of Biological Research 1 s.h.
Scientific methodology in the fields of biological systems, eight weeks emphasis on basic science. 4 s.h.
especially liquid scintillation counting. Two-weeks emphasis on radiographic methods of analysis at all levels. Prerequisite: consent of instructor. 4 s.h.
77-324 Research radiobiology 4 s.h.
77-327 Special Topics 4 s.h.
77-329 Special Topics 4 s.h.
77-330 Thesis 4 s.h.
77-331 Thesis 4 s.h.

Radiology


The Radiology Department's teaching program is designed to meet the needs and interests of fourth-year medical students in diagnostic radiology, nuclear medicine, and radiation therapy. Residents through the various subspecialties of diagnostic radiology—involve ultrasonic, computerized tomography and nuclear medicine, and radiation therapy—are designed according to the student's area of interest.

Courses

761-121 Clinical Radiology 4 s.h. Clinical rotation in diagnostic radiology and nuclear medicine in the Department of Radiation Therapy. Fifteen students, four weeks, three times per year. 4 s.h.
761-122 Introduction to Radiation Therapy 4 s.h. Clinical rotation in diagnostic radiology and nuclear medicine in the Department of Radiation Therapy. Fifteen students, four weeks, three times per year. 4 s.h.
761-123 Principles of Nuclear Medicine 12 s.h. Elective courses with clinical rotating in nuclear medicine integrating basic science background and clinical experience. Fourteen students, four six-week rotations per year. 12 s.h.
761-124 Radiological Physics for Physician Assistant 12 s.h. Elective courses with clinical rotating in nuclear medicine integrating basic science background and clinical experience. Fourteen students, four six-week rotations per year. 12 s.h.
761-125 Principles of Nuclear Medicine 12 s.h. Elective courses with clinical rotating in nuclear medicine integrating basic science background and clinical experience. Fourteen students, four six-week rotations per year. 12 s.h.
761-126 The Medical Aspects of Nuclear Weapons 1 s.h. Elective courses with clinical rotating in nuclear medicine integrating basic science background and clinical experience. Fourteen students, four six-week rotations per year. 12 s.h.
761-127 Applied nuclear Medicine Technology 12 s.h. Elective courses with clinical rotating in nuclear medicine integrating basic science background and clinical experience. Fourteen students, four six-week rotations per year. 12 s.h.
offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care.

In the first year of the M.D. program, the department participates with several of the basic science departments in teaching the relationship of urology to the basic sciences. The department participates with the Department of Microbiology in the teaching and research in immunology as it relates to transplantation and cancer.

The Department of Urology participates very actively in SB 111 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers illustrative lectures and demonstrations concerning the diagnosis and treatment of diseases involving the genitourinary tract in the male and the urinary tract in the female and child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, radiologic urology, urologic oncology, and the entire field of urology. In the required third-year clerkship, the department offers the basics of this material, and in the fourth year it covers advanced elective courses of intensive study in these areas.

The department offers continuing education throughout the year for urologic and family practitioners. These activities are conducted by the senior staff whose interests include pediatric urology, reproductive physiology, urologic oncology, and prostatic diseases.

The department has earned international recognition for its studies of prostatic diseases.

The urological laboratories are active and offer instruction in various urological research areas. The department offers special elective courses in these areas.

Courses

79118 Clinical Urology 3 A.H.

Intensive 8-week course of study in urology wards; junior medical students responsible for patient care under supervision of residents.

79119 Advanced Clinical Urology 3 A.H.

Student becomes integral member of urologic staff, spends time in clinic for four weeks, assignment to appropriate department, under direction of junior and senior staff.

79120 Advanced Clinical Urology at VA 4 A.H.

79120 Individual Study and Research 2 A.H.

Individual projects, either practical or clinical, under direction of staff member. urologic surgery staff direct and guide students throughout their training.

79121 Urology 18 A.H.

Full time in departments of Urology and Radiology, where instruction, conferences, demonstrations, and techniques of urologic procedures are presented and discussed. Examinations in preparation or time provided, course requires attendance of department conferences.
College of Nursing

The College of Nursing is an integral part of The University of Iowa Health Center, sharing in and contributing to teaching, research, and patient care services which have earned international recognition. This provides an unusually fine setting for college preparation for nursing, because the educational and clinical resources which are needed to educate nurses are available on or nearby the campus. This also makes it possible for the faculty and students to participate fully in University 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 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 licensure examination required for registration 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, armed forces, the Peace Corps, the World Health Organization, Red Cross, home and foreign missions, youth camps, and professional organizations. A professional 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 college-level preparation for careers in the independent practice of patients and in such community agencies as public health services, schools, and industries. In addition, it provides the essential base for graduate study in nursing.

In addition to the advantages of obtaining general education with specific career preparation, a college or university program offers the advantages—lightly less important—of full participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing no less than in other pursuits, a college or university background enables young people not only to realize their highest career potentialities, 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 79 semester hours of liberal arts general education 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 to other than the acutely ill.

Approaches to the College of Nursing

The student may complete the entire program at the University's College of Liberal Arts, or transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.

Cooperative state institutions in the transfer plan include Iowa State University; The University of Northern Iowa; and Upper Iowa, Elmer Griffing, Monmouth College Heights, Muscatine, Iowa Falls, Averill, Boone, and Fort Dodge. Completion of the transfer sequence as a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfer are the same as for all other College of Nursing applicants.

Prospective transfer students who want more information about the College of Nursing should contact the cooperating institution of their choice.

Cooperative Clinical Internship

Summer Clinical Nursing Internships are offered to qualified undergraduate students who are selected on a competitive basis from the applications received. Students may apply after successful completion of Nursing III. Interested students should contact the Office of the Assistant Dean.

Undergraduate Studies for application information.
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 refer to the Aging Studies Program information in the College of Liberal Arts.

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
Advisors from the Undergraduate Academic Advising Center advise pre-nursing students and after admission to the College of Nursing, each student is assigned to a faculty advisor.

Student Organizations
College of Nursing students have their own Associated Student Nurses 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. Students must also purchase uniforms, white shoes, a stethoscope, a watch with a sub-seconds second hand and supplies and materials for required nursing courses. Students arrange for their own health insurance requirements and transportation once enrolled in clinical nursing courses.

Financial Aid
In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For further 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. Other college preparatory courses selected with the help of the high school counselor.

College Background
Admission Requirements
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 30 semester hours completed in an accredited college; 2) successful completion of three of the following science courses (organic chemistry, biochemistry, inorganic chemistry, microbiology, human anatomy, human physiology); 3) a minimum grade-point average of 2.2.

Rhetoric—eight semester hours may be satisfied by writing for advanced standing, and if the student has earned six semester hours of credit in English composition, the speech component may be completed after admission. Mathematics—satisfactory completion of two years of high school algebra and one year of high school geometry, or their equivalent, or a score of 26 on the mathematics section of the American College Tests, or a passing score on a basic mathematics techniques proficiency test at the University, or satisfactory completion of 120M:1 Basic Mathematics. Techniques (2 semester hours) or completion of a comparable or more advanced course in the University's Division of Mathematical Sciences. Physics—one-half year of high school physics or its equivalent (if taken at the college level it may be included in the 30 semester hours required for admission).

Credits earned to satisfy the following general education requirements may be included in the 30 semester hours presented for admission.

General education requirements:

Historical perspectives—3 semester hours; Humanities—3 semester hours; Foreign civilization and culture—1 semester hours; and Statistics—3 semester hours.

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:

Animal biology 4 s.h.
Chemistry (organic and inorganic-biochemistry) 6 s.h.
Human anatomy 4 s.h.
Human physiology 4 s.h.
Microbiology 4 s.h.
Nutrition 3 s.h.
Psychology 3 s.h.
Sociology 3 s.h.
Anthropology 3 s.h.

Human development and behavior 3 s.h.

Standards
To be considered for admission to the College of Nursing, the applicant should have satisfactorily completed college coursework.

American College Tests
For information on the tests, write to the American College Testing Program, Box 451, Iowa City, Iowa 52243.

Selection Factors
Fulfillment of minimum admission requirements does not guarantee admission to the College of Nursing. 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 are to be on file at the Student Health Services ten days prior to the opening of classes for the first clinical nursing course.

Application Deadlines
Applications must be received by January 15 or the fall semester, and June 15 for the spring semester.

Master of Arts
The University of Iowa Master of Arts degree is accredited by the National League for Nursing. The curriculum is designed to build upon general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from a NLN-approved baccalaureate degree program is one of the admission requirements.

The aim of the program is to prepare students in an area of nursing specialization and to allow 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 which are designed to serve as the foundation for specialization and role preparation in specific areas. Since this upper-division specialization may be broad or narrow, the curriculum is designed to allow for general nursing specialization options which focus on patients or clients: child health nursing, adult health nursing, and community/family health nursing. Within these specialty areas, however, students may tailor their plans of study to accommodate their specific interests by arranging for specific sites and types of field experiences to fulfill the practicum component of the specialization courses; thus, the development of relevant concepts is to be developed in these courses; by selection of specific courses in the supporting areas; and through the
NURSING

problems they select for study in their thesis projects. Similarly, role preparation is available in three areas: education, administration, and advanced 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 area. Students, for instance, may select most of their supporting course work in administration or management in order to allow for maximum preparation in that role area.

Although the courses offered by the College of Nursing emphasize a holistic approach to patients or clients, it is possible to concentrate on either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select concepts, field experiences, and supporting course work to extend 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. The end result would be that, with the assistance of their academic advisers, students can design plans of study within a flexible curriculum structure to suit their particular career interests. The basic requirements of the program are:

Degree Requirements

The 45-semester-hour curriculum will ordinarily require four semesters of full-time study for completion. Fall and spring and summer study options are available. However, the student must maintain a 2.5 minimum G.P.A. and must successfully complete both a thesis project with oral defense and a written comprehensive examination.

The master's degree curriculum is structured into five components:

1. Advanced Nursing Core (17 semester hours): Nursing specialization (eight semester hours): allows the student to build a special area of knowledge and practice which extends beyond the advanced nursing core. Specialization may be in the broad areas of child health nursing, adult health nursing, or community health nursing. Students may choose to extend their current specialization through their course of 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 cardiac care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic adviser.

Role development (six 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 attend workshops to develop skills for careers in clinical practice, for example, or enroll for six semester hours of advanced clinical practice, which is 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 (nine semester hours): Students may choose their supporting course work in areas related to their nursing specialization or role preparation interests. Supporting science course related to the nursing specialization area is required.

Thesis (five semester hours): Every student is expected to write and successfully defend a thesis. There involves a systematic inquiry into a nursing problem to include such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies which meet the requirements of the Graduate College.

Plan of Study

The plan of study described below is designed for the full-time student. Students wishing to study on a part-time basis will proceed at a pace approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, would extend the time the student studies to five years. Any course work taken ten years or more prior to the Final Examination must be updated, according to University policy.

First Year

Fall Semester
96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
98:204 Leadership in Nursing: Theory and Application 4 s.h.
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester
96:201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
96:223 Child Health Nursing I 4 s.h.
or 96:225 Adult Health Nursing I 4 s.h.
or 96:224 Community/Family Health Nursing I 4 s.h.
Total 10 s.h.

Second Year

Fall Semester
96:211 Methods of Research in Nursing II 3 s.h.
96:223 Child Health Nursing II 4 s.h.
or 96:227 Adult Health Nursing II 4 s.h.
or 96:235 Community/Family Health Nursing II 4 s.h.
96:246 Critical Care Development in Nursing Education 3 s.h.
96:250 Nursing Administration: Process, Roles, and Strategies 3 s.h.
or 96:258 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
96:299 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 3 s.h.
or 96:261 Nursing Administration: Process, Roles and Strategies II 3 s.h.
or 96:269 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
Supporting Course 3 s.h.
96:299 Thesis 3 s.h.
Total 11 s.h.

Graduate 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 3.5 minimum grade-point average for regular admission, a 2.3 for conditional admission.

In addition to the general requirements for admission to the Graduate College, students 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 2.7 or a demonstrated ability to do graduate work for regular admission, at least a
The pharmaceutical sciences are concerned with the identification and dispensation of medicinal products and monitoring of their effects. The pharmacist is also trained to identify, analyze, select, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics.

Although he or she performs a variety of tasks, the pharmacist is basically a specialist in the science of drugs. He or she must understand their 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 the strength, purity, and efficacy of drug products. The pharmacist is prepared to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs— their availability, activity, toxicology, contraindications, etc. Another important role of the pharmacist is the communication of knowledge of drugs to the patient and to other health professionals.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. This size and type of practice may vary— community pharmacies may be large or small, operable by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of the nation's almost 100,000 men and women practice in community pharmacies.

Another group of pharmacists is employed in hospital pharmacy work. The government employs pharmacists in 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, control, marketing, and advertising. In addition to these, numerous others are employed in pharmaceutical sales as medical service representatives.

Pharmacy training is especially valuable to these men and women, who are responsible for acquiring physicians, dentists, veterinarians, and other pharmacists with drug products.

In the United States more people are receiving total health care than ever before. This expansion of health care will continue. Young men and women in pharmacy 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, and they receive professional training and education in a number of fields, including pharmacy technology, pharmaceutics, medicinal chemistry, and natural products, pharmaceutical economics, education, 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.

Basically, the Bachelor of Science program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or in any accredited community or liberal arts college, and four years of pharmacy studies.

It is possible to transfer into the College of Pharmacy after two years of college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes, in addition to the basic professional prerequisites, at least eight semester hours of organic chemistry, from five to eight semester hours of biology or zoology, three or four semester hours of economics and three to four semester hours in quantitative analysis.

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 Examination.

The professional curriculum requires a number of hours of electives. In choosing appropriate electives, the student may choose on such topical areas as clinical or hospital pharmacy or pregraduate study.

The Professional Curriculum

For students admitted no later than the Fall 1984 semester.

First Semester

46-13 Pharmacy Math 3 s.h.
37.3 Principles of Animal Biology 5 s.h.

Degree offered: B.S. Ph., Pharm.D., M.S., Ph.D.
41:121 Organic Chemistry I 3 s.h.
41:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46:14 Pharmacy: Orientation 2 s.h.
61:1 Principles of Economics 4 s.h.
41:122 Organic Chemistry II 3 s.h.
41:141 Organic Chemistry Laboratory 3 s.h.
*60:103 Principles of Human Anatomy 3 s.h.
**Elective 3 s.h.
Total 18 s.h.

*Also offered first semester for students on a 2-3 program only
**18 semester hours of electives are required.

Second Year
First Semester
46:232 Pharmaceutics I 4 s.h.
59:162 Biochemistry for Pharmacy Students 4 s.h.
61:157 General Microbiology 4 s.h.
*60:103 Principles of Human Anatomy 3 s.h.
Total 15 s.h.

Second Semester
46:242 Pharmaceutics II 4 s.h.
46:222 Pharmaceutical Socioeconomics: Health Care Systems 4 s.h.
46:128 Medical Chemistry: Natural Products I 4 s.h.
72:150 Intermediate Physiology 4 s.h.
Total 15 s.h.

*Mandatory taken second semester of first year.

Third Year
First Semester
46:121 Medical Chemistry: Natural Products II 4 s.h.
69:198 Introduction to Human Pathology 4 s.h.
71:191 Pharmacology for Health Sciences: Pharmacy 5 s.h.
46:35 Pharmaceutical Socioeconomics: Practice Management 3 s.h.
Total 15 s.h.

Second Semester
46:132 Medical Chemistry: Natural Products III 4 s.h.
71:103 Pharmacology and Toxicology 3 s.h.
46:38 Pharmaceutics III 3 s.h.
46:110 Clinical Pharmacy: Case Study 3 s.h.
46:61 Clinical Pharmacy: Drug Information 3 s.h.
Total 15 s.h.

Fourth Year
First Semester
45:41 Introductory 2 s.h.
46:43 Pharmaceutics IV 4 s.h.
*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
45:111 Clinical Pharmacy: Therapeutics I 2 s.h.
Elective 4-6 s.h.
Total 14-16 s.h.

Each P-4 student must complete six clinical clerkships (usually three each semester). Two of these are required (46:60 and 46:61).

Second Semester
*46:60 Clinical Pharmacy: Practice in Pharmacy 3 s.h.
46:112 Clinical Pharmacy: Therapeutics II 2 s.h.
Electives 6-8 s.h.
Total 10-12 s.h.

*Mandatory taken either semester.

Professional Electives
46:48 Community Pharmacy: Resisting 3 s.h.
45:52 Senior Seminar 1 s.h.
46:56 Non-Prescription Drugs 2 s.h.
46:101 Pharmacy: Projects 1-3 s.h.
46:103 Physical Pharmacy 3 s.h.
46:104 Pharmacokinetics and Biopharmaceutics 3 s.h.
46:105 Industrial Pharmacy Survey 2-3 s.h.
46:108 Hospital Pharmacy: Survey 3 s.h.
46:114 Advanced Clinical Pharmacy 4 s.h.
46:135 Perspectives in MCP Research 1 s.h.
46:138 Introduction to Medicinal Chemistry: Natural Product Research 1-2 s.h.
46:147 Introduction to Research Methods 3 s.h.
46:154 Communications Skills for Pharmacists 3 s.h.

Professional Clerkships
46:82 Clinical Pharmacy: Family Practice Therapeutics 3 s.h.
46:92 Clinical Pharmacy: Pediatrics 3 s.h.
46:84 Clinical Pharmacy: Radiopharmacy 3 s.h.
46:85 Clinical Pharmacy: Surgical Therapeutics 3 s.h.
46:86 Clinical Pharmacy: Geriatric Therapeutics 3 s.h.
46:67 Clinical Pharmacy: Neurology 3 s.h.
46:58 Clinical Pharmacy: Elective Clerkship 3 s.h.
45:120 Clinical Pharmacy: Psychotherapeutics 3 s.h.

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 15 semester hours of electives and to achieve a minimum grade-point average of 2.0 for all work undertaken.

For rules and regulations concerning academic probation, pass-fail options, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

Admission
Admission to the College of Pharmacy for the Fall 1984 Semester requires the following preprofessional course work:

Physics: eight semester hours of six semester hours of transfer credit in the physical sciences; one hour, and two semester hours in speech.

Mathematics: three or four semester hours of a satisfactory differential and integral calculus course.

Physics: one- or two-semester course in basic physics. A one-year animal biology or zoology course may be substituted; physics will then be taken in the first professional year.

Students who have minor deficiencies in meeting the above requirements may be admitted to the college upon recommendation of the chair of the admissions committee and the approval of the dean.

The applicant must have earned a 2.0 cumulative grade-point average on all college work attempted.

Failure of these requirements does not ensure admission to the college. From applicants meeting the requirements, the admissions committee of the college selects the best-qualified applicants.

Transfer Students
Students who transfer into the college after two years in a community college or liberal arts college can complete the pharmacy program. They are expected to satisfactorily complete courses in organic chemistry, biology or zoology, economics, and quantitative analysis. Students who plan to remain in a community college for two years before transferring to the UI college should consult the dean of the College of Pharmacy concerning course requirements.

Admission Requirements Effective for Fall 1985 Semester

In order to increase the general education component of the pharmacy curriculum, there will be changes in the admission requirements and the present curriculum from those stated above.

These changes will affect prepharmacy students in 1984-85 and students admitted to the College in the fall of 1985.
Preprofessional Course Work
Rhetoric: eight semester hours, or six semester hours of transfer credit in English composition and rhetoric, and two semester hours in speech.
General chemistry: eight semester hours.
Mathematics: three or four 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 29.8 Basic Physics.
General education electives: six semester hours.
*In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elected courses should be in the behavioral, social, and humanistic areas of knowledge.

Transfer Students Admitted for Fall 1985 Semester
Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, quantitative analysis, and satisfactory general education electives. Students who wish to remain in a community college for two years before transferring to UI should consult the dean of the College of Pharmacy concerning course requirements. The Professional Curriculum, Effective for Fall 1985 Semester
First Year
First Semester
46:33 Pharmacy Math 3 s.h.
4:121 Organic Chemistry I 3 s.h.
37:9 Principles of Animal Biology 5 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.
Second Semester
46:14 Pharmacy Orientation 2 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
60:102 Principles of Human Anatomy 3 s.h.
*General Education Electives 9-9 s.h.
Total 17-20 s.h.
*Also offered first semester for students on a 2-3 program only.
**In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elected courses should be in the behavioral, social, and humanistic areas of knowledge.

Second Year
First Semester
46:25 Pharmacology I 4 s.h.
59:152 Biochemistry for Pharmacy Students 4 s.h.
61:157 General Microbiology 4 s.h.
60:152 Principles of Human Anatomy 3 s.h.
General Education Electives 0-3 s.h.
Total 15-18 s.h.
Second Semester
46:24 Pharmacology II 4 s.h.
46:22 Pharmacology. Pharmacoeconomics Health Care Systems 4 s.h.
46:128 Medical Chemistry: Natural Products I 4 s.h.
72:150 Intermidiate Physiology 4 s.h.
Total 16 s.h.
**May be taken in second semester of first year.

Third Year
First Semester
46:131 Medicinal Chemistry: Natural Products II 4 s.h.
69:203 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology for Health Sciences: Pharmacy 4 s.h.
46:35 Pharmacological Pharmacoeconomics Practice Management 3 s.h.
Total 16 s.h.
Second Semester
46:132 Medicinal Chemistry: Natural Products III 4 s.h.
71:102 Pharmacology and Toxicology 3 s.h.
46:38 Pharmacology II 3 s.h.
61:19 Clinical Pharmacy: Case Study 3 s.h.
46:81 Clinical Pharmacy: Drug Information 3 s.h.
Total 16 s.h.

Fourth Year
First Semester
*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:111 Clinical Pharmacy: Therapeutics I 2 s.h.
46:41 Jurisprudence 2 s.h.
46:43 Pharmacology IV 4 s.h.
*1-2 Selected Clinics 3-6 s.h.
Total 14-17 s.h.

Second Semester
*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:112 Clinical Pharmacy: Therapeutics II 2 s.h.
*1-2 Selected Clinics 3-6 s.h.
General Education Electives 3 s.h.
Total 11-14 s.h.
*May be taken in either semester.
**Each P-A student must complete six clinical clerkships, including 46:60 and 46:61. The others are selected from a large number of offerings.

Transfer with Advanced Standing
Applicants transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education may receive credit for work required in this curriculum. However, at least one academic year (30 semester hours) of residence in The University of Iowa College of Pharmacy is required for the degree. Students transferring from nonpharmacy colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but still must expect to be enrolled for at least three years in the College of Pharmacy. A minimum grade of C is required for work applied by transfer toward the pharmacy degree.

Doctor of Pharmacy Program
The Doctor of Pharmacy (Pharm. D) program is a two-year, post-baccalaureate professional degree program which combines didactic course work and clinical clerkship. The major goal of the program is to provide the health-care system with pharmacists who are specifically prepared to undertake an extended role in monitoring, evaluating, and dispensing drug therapy in hospitals and ambulatory patients. These students may be admitted to the College of Pharmacy with an equivalent number of highly qualified pharmacy graduates.
Respective students may obtain specific information on the Pharm. D. program by writing to The University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

Graduate Programs
The college of pharmacy programs in each of its four academic divisions, Master of Science and Doctor of Philosophy programs are available in pharmacometrics, medicinal chemistry-natural products, and pharmaceutical socioeconomic. A Master of Science degree is available in clinical-hospital pharmacy. Advanced study in the pharmaceutical sciences prepares the student for research, teaching, and administrative positions in the pharmaceutical, chemical, and agricultural chemical industries, in colleges and universities, government agencies, and in a number of health-related industrial organizations. The application deadlines, grad-point average for admission, Graduate Record Examination (GRE) Aptitude Test score and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are
Courses

Undergraduate Pharmaceutics

4622 Pharmacy Math 2 sem.

Application of concepts of weights and measures and mathematical operations involved in pharmaceutical procedures and practice. Includes sections in mathematics and its application to pharmaceutical problems.

4614 Pharmacy Therapy 2 sem.

Lectures and discussion of career opportunities, pharmacy's functions and responsibilities, pharmacy practice settings, education, and professional organizations in pharmacy.

4623 Pharmacology 4 sem.

Lectures and laboratory in the general principles of pharmacology. Characteristics of small particles, properties of solid forms, formulation, preparation, and evaluation of solid dosage forms. Pre-requisites: 4613; 4622; 4624, 4628.

4625 Pharmacology/Pharmaceutics 4 sem.

Lectures and laboratory on application of physical and chemical laws to the formulation and preparation of liquid dosage forms. Color, odor, texture, and evaluation of liquid dosage forms. Pre-requisites: 4613; 4622; 4628.

4628 Pharmaceutics II 4 sem.

Fundamentals of drug distribution, absorption, and elimination. Computer-based experience at three computer centers to study the effects of dosage form and formulation factors influencing these processes. Pre-requisites: 4613; 4622; 4624, 4628.

4634 Pharmacology IV 4 sem.

Lectures on availability and formulation aspects of dosage forms including oral, topical, parenteral, inhaled, nasal, and/or topical; laboratory emphasis on techniques of computing and dispensing, parent drug systems, recognition of drug interactions, i.v. add-ons, and an introduction to the use of computers in pharmacy. Pre-requisite: 4628.

Graduate Pharmaceutics

4610 Pharmacy Projects 1-6 sem.

Basic and applied research projects in pharmaceutical science. Prerequisite: See below; standing open to graduate students.

4612 Physical Pharmacy 3 sem.

Surface and interfacial phenomena, adsorption, and solubilization in pharmaceutical systems.

4616 Analytical and BioPharmaceuticals 3 sem.

In-depth of drug dissection, degradation, and sterilization, including development of mathematical models. Prerequisite: two semesters of calculus and one semester of statistics and course of instructor. Pre-requisites: 4613; 4622; 4624.

4626 Pharmacy Select Topics 3 sem.

Recent advances and contemporary research in pharmaceutics. May be repeated.

4628 Pharmacy of Pharmacodynamics 3 sem.

Mathematics of degradation of pharmaceuticals. Determination of factors of degradation, measurement. Often offered summer session. Pre-requisites: 4613; 4622; 4624.

4627 Quantitative Research Methods in Pharmacy 3 sem.

Lectures and laboratory: collection and interpretation of analytical data. Instrumental analysis as applied to pharmaceutical quality control, separation techniques.

4635 Product Development 3 sem.

Application of pharmaceutical and physiological principles to formulation and design of pharmaceutical dosage forms.

4626 Product Development 3 sem.

Completion of 4625.

4629 Advanced Pharmacodynamics and BioPharmaceutics 2 sem.

Advanced treatment of selected topics in pharmaceutics and biopharmaceutics. Pre-requisites: 4610, 4622, 4624, 4628.
46.105 Nursing Clerkship  cr. 
Lecture and advanced clinical practice of the pharmacist/technologist related to neurological diseases, geriatrics, and the elderly. Prerequisite: Pharm 3, standing and consent of instructor.

46.106 Surgery Clerkship  cr. 
Advanced application of therapeutic skills necessary for the management of general surgery patients. Prerequisites: Pharm 3, standing and consent of instructor.

46.107 Clinical Nuclear Pharmacy Clerkship  cr. 
Advanced clinical instruction in the use of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological intervention in nuclear medicine studies, and radiopharmaceutical drug monitoring. Prerequisite: Pharm 3, standing and consent of instructor.

46.108 Dental College Clerkship  cr. 
Advanced clinical experience involving general and local anesthesia, conscious sedation and pain control, rational antibiotic therapy, and participation in management of the hospitalized compromised patient. Prerequisites: Pharm 3, standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

46.118 Hospital Pharmacy Survey  3 cr. 
Medical and hospital pharmacy residents pharmacy committees, formulary, special aspects of hospital drug procurement, theory and practice of inventory control, drug distribution and pharmacy service, pharmacy service systems, drug utilization review, drug information, pharmacy management and reporting. Prerequisite: consent of instructor.

46.119 Advanced Clinical Pharmacy  cr. 
Application of principles of pharmacology and therapeutics to patients under the care of hospital-based pharmacists. Students participate in ward rounds and conferences with the medical staff, and monitor patients on various types of drug therapy; emphasis on drug selection, adverse effects of drugs and diseases modification of therapeutic and toxic responses. Prerequisites: 46.118 and consent of instructor.

46.121 Clinical Pharmacy Drug Literature Review and Evaluation  2 cr. 
Literature of hospital pharmacy practice, including clinical aspects, emphasis on techniques of evaluating and preparing literature, study of toxicology, cost control, drug utilization, etc. An understanding of research is necessary. Prerequisite: consent of instructor.

46.201 Hospital Pharmacy Fundamentals  3 cr. 
Theory and applications in preparation, packaging and setting of parenteral dosage forms.

46.202 Nuclear Pharmacy  2 cr. 
Design, control and evaluation of radiopharmaceuticals; interpretation of radiopharmaceutical data; administrative and managerial functions in nuclear pharmacy services; radiopharmaceutical drug information. Prerequisite: consent of instructor.

46.203 Clinical Pharmacotherapeutics  3 cr. 
Contemporary pharmacotherapeutics in selected disease states. Discussions focus on current therapy emphasizing individualization of drug regimens, relative efficacy, and costs of drug therapy. Prerequisite: 46.112 or consent of instructor.

46.204 Clinical-Hospital Pharmacy Seminar  1-2 cr. 
Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.

46.205 Hospital Pharmacy Directed Study in Administrative Practice  1-3 cr. 
Application of basic organizational and administrative theory to practical problems in hospital pharmacy such as personnel management, budgeting and forecasting, systems and physical plant design. Prerequisites: 46.102 and 49.101 or equivalent.
Continuing Education

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to "render a larger service to the Commonwealth and to the people of Iowa by carrying, out to every part of the State the knowledge, the thought, the ideals, and the spirit of the various 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:

Center for Credit Programs

Correspondence Courses

Over 150 Guided Correspondence Study courses are available from The University of Iowa; all courses are approved by the appropriate University departments. Students in residence at The University of Iowa must obtain permission of the dean of their college to enroll in Guided Correspondence Study courses for degree credit.

The following departments or divisions have approved courses in Guided Correspondence Study:

- College of Liberal Arts: Afro-American Studies; Anthropology; Asian Languages and Literature; Chemistry; Classics; Communication and Theatre Arts; English; French; Geography; Geology; German; History; Home Economics; Journalism and Mass Communication; Linguistics; Literature; Science and the Arts; Mathematics; Music; Philosophy; Physical Education; Political Science; Psychology; Recreation Education; Religion; Russian; Social Work; Sociology; Spanish and Portuguese; Women's Studies; Zoology
- College of Business Administration: Economics; Finance; Industrial Relations and Human Resources; Management Science
- College of Education: Counselor Education; Early Childhood and Elementary Education; Foundations; Postsecondary and Continuing Education; Psychological and Quantitative Foundations; Secondary Education; Special Education
- College of Engineering: Chemical and Materials Engineering
- College of Medicine: Preventive Medicine and Environmental Health
- College of Nursing

Enrollment fees for correspondence courses are $5; course fees are $75 per semester hour. Fees are payable at the time of registration. A catalog including course listings, procedures, and information about enrollment dates may be obtained from Guided Correspondence Study, W400 Seashore Hall.

Veterans are eligible for correspondence courses concurrently with other academic study under Public Law 92-540. Veterans should contact the Veterans Affairs Office at the University.

Off-Campus Classes

The division offers off-campus classes in 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 practical, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in engineering are scheduled on a part-time basis. Courses in liberal arts, business administration, nursing, and education require enrollment fees to meet course expenses. For information, write to Center for Credit Programs, W400 Seashore Hall.

Saturday and Evening Classes

This program provides credit course offerings for part-time undergraduate, graduate, or classified students. Courses are offered from schools and departments of the University, For a Saturday and Evening Classes catalog, write to Saturday and Evening Classes, 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 residence requirements. Credits toward the degree, which is awarded by the College of Liberal Arts, may be earned through correspondence study. Saturday and evening classes, off-campus courses, and television and teletext courses. Work done at community and private colleges may be applied toward the degree, as may courses taken from any of the Iowa Regents universities. For more information contact the Center for Credit Programs, W400 Seashore Hall.
Center for Conferences and Institutes

The center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for noncredit adults and for administering the University's Continuing Education Unit (CEU). Its 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 36,000 adult reproductive training in the center's varied programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The marshaling 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 approving and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings here in the Iowa Memorial Union for 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 university and Coralville community are expected to achieve the best possible satisfaction from 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 courses of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units may be awarded by course completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

The educational Radio Services of WDCW NGUS FM serve the needs and interests of the people of eastern Iowa with 16 hours of daily broadcasting which extends the resources and activities of the University. The broadcast schedule consists of educational, cultural, and informational programming not available elsewhere. As an affiliate of National Public Radio (NPR), WUSU contributes program materials to a national network of more than 250 non-commercial radio stations. The main studios and offices are located in 3320 Engineering Building, and a few copy offices. The Station 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 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 governmental agencies.

• 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.

Office of Community College Affairs

The Office of Community College Affairs (OCCA), which is closely aligned with the College of Education, serves as the liaison office between the University and Iowa's community and vocational-technical colleges. In addition, OCCA provides discipline articulation and student services, OCCA extends its services to the private two- and four-year colleges in the state. The office serves these educational systems and their respective personnel in these ways:

• Provides a liaison service between the University and statewide professional groups and associations as we as selected regional and national organizations; conducts relevant research on community colleges and disseminates descriptive data reports to the community colleges.

• Facilitates University-community college faculty relations.

• Coordinates articulation of University-Community College institutional policy and curricula.

• Provides in-service training and development opportunities for community college personnel, and assists the College of Education and other University colleges and departments in providing programs for community college personnel leading to state certification; participates in state, regional, and national approval, accreditation, and consultation activities.

• Provides regular information, consultation, and coordination services for specialized groups of community college personnel and students.

• Provides peer counseling outreach programs to prospective community college transfer students who enroll in the University.

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 also listing for "Lakeside Laboratory" under College of Liberal Arts.)

Macbride Field Campus

The University hosts a lease from the U.S. Army Corp of Engineers on two tracts of land in the Coralville Reservoir area north of Iowa City. The two tracts total approximately 620 acres. One tract is reserved for biological research, the other for university-wide activities. Developments in the area to date include provision of an access road, water supply, electric power maintenance storage facilities, a boat house and sailing facilities, field archery course, facilities for handicapped persons, and picnic areas. A small nature lodge is available to school groups.
Audiovisual Center

The mission of the Audiovisual Center is to assist 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 in:

Instructional Development

The Audiovisual Center staff is able to assist faculty and staff in the designing and planning of learning facilities and media, in locating materials for specific disciplines, and in developing strategies for utilizing media.

Media Services

The Audiovisual Center Media Library provides a major collection of 16mm instructional films and videocassettes, available on campus without charge for instruction and curriculum-related activities, and for rental to off-campus requestors. Smaller collections of audio tapes, filmstrips, and slides, plus facilities for student or faculty utilization, are also available. Catalogs of these collections are available upon request. The Library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use film, slide, filmstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders, record players; portable public-address systems; and display devices (exhibits, naps, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and/or off-campus use. Reserve service is available at a nominal charge for A/V equipment.

Media Production

Professional services, facilities, and equipment are available to produce original software in all media:

Graphics—design, layout, paste-up, illustrations, charts, graphs, lettering, etc.
Audio—recording, editing, duplication, transcription service
Motion picture—scripts, cinematography, and editing
Photography—portraits, passport, side shows, 16mm color, 35mm side duplication, printing and processing services
Television—video production, color and black-and-white (1-inch, 2-inch, and cassette); systems design; equipment maintenance; portapak 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 needs arise, 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 Braille and Sight Saving School, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of nine members. The board membership is as follows:
President: S. J. Brownlee, Emmetsburg
Peg Anderson, Bettendorf
Charles Duben, Des Moines
Perry G. Harris, Cedar Rapids
Ann Jorgensen, Garrison
John McDonald, Dallas Center
June Murphy, Des Moines
Arthur Nau, Carroll
Bass Van Gist, Okoboji
Executive secretary: R. Wayne Richay

Central Administration
President: James G. Friedman
Vice-President for Academic Affairs and Dean of Faculties: Richard D. Ramlington
Vice-President for Educational Development and Research, Dean of the Graduate College: Druce C. Spieristebach
Vice-President for Finance and University Services: Dorsey J. Ellis, Jr.
Vice-President for Student Services and Dean of Academic Affairs: Philip G. Hubbard

Academic Affairs
Vice-President and Dean of Faculties: Richard D. Remington
College of Business Administration
Dean: George Day
Industrial Relations Institute Director: Anthony J. Sicamipri
Institute of Accounting Research Acting Director: Robert W. Ingram
Institute of Economic Research Director: Jerold Barnard
Institute of Insurance Education and Research Director: Emmett J. Vaughan
Institute for Entrepreneurial Management: Emmett J. Vaughan

College of Dentistry
Dean: James H. McLern
Down Institute for Dental Research
Director: Ian MacKenzie

College of Education
Dean: Charles W. Davis
Iowa Institute for School Executives
Director: George A. Oviatt

College of Engineering
Dean: Robert G. Herrig
Institute of Hydraulic Research Director: John F. Kennedy

Graduate College
Dean: Duane C. Spieristebach
Dean of Advanced Studies: Rudolph W. Schults

College of Law
Dean: N. William Hines

College of Liberal Arts
Dean: Howard Lastel
School of Art and Art History Director: Wallace J. Tomasi
School of Journalism and Mass Communication Director: Kenneth Storck
School of Letters Acting Director: Richard Lloyd-Jones
School of Library and Information Science Director: Carl F. Oglesby
School of Music Director: Marilyn F. Sampson
School of Religion Director: John P. Boyle
School of Social Work Director: Janice Wood Wetzel

College of Medicine
Dean: John W. Eckstein

College of Nursing
Dean: Geraldine Fellon

College of Pharmacy
Dean: Robert A. Wiley

Division of Continuing Education
Acting Dean: M. Dean Zenor
Audiovisual Center Director: William Oglesby
Center for Conferences and Institutes
Director: June Braverman
Center for Credit Programs Director: Von V. Pittman, Jr.
Community College Affairs Director: Duane D. Anderson
Institute of Public Affairs Director: Clayton Ringenberg
Iowa Lakeside Laboratory Director: Richard V. Seyberg
McBride Field Campus Director: Radio Stations WSUI-WSUI Director: George S. Krueger
Iowa Center for the Arts
Chair: Philip G. Hubbard

Libraries
University Librarian: Dale M. Bentz

Museum of Art
Director: Robert C. Hobbs
Academic Personnel

The following persons hold University of Iowa faculty appointments within the ranks of instructor, assistant professor, associate professor, or professor. As of July 1, 1954, in this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.


Alexander, Samuel J., B.A., B.B.S., Christian Medical School (India) 1965; clinical assistant professor, internal Medicine, 1979.


Giese, Ralph E., A. B., Wayne State University 1944, M. A. 1947, Ph.D. (California) 1954, professor, History, 1956
Gifford, Arnold A., B. A., M.A. Indiana 1929, B. S. Ed. 1933, associate professor, English, 1933
Gillis, James B., B.A. 1949, M.A. Columbia 1950, professor, School of Music, 1950
Girard, Brian J., B.S. Iowa 1968, M. D. 1974, assistant professor, Community Dentistry, 1974
Gillmor, James A., B. S., Iowa 1938, associate professor, English, 1939
Gimenez, A. B. 1949, M.A. Columbia 1950, professor, School of Music, 1950
Gilliland, James L., B. S. Missouri State 1959, S.D. Dakota College 1973, clinical assistant professor, Internal Medicine, 1973
Gilliam, W. S., B. S. St. Peter’s 1956, industrial Relations and Human Resources, 1956
Ginsburg, Henry W., S. B. Iowa 1927, M.S.W. Nebraska 1944, associate professor, School of Social Work, 1944
Ginsberg, Fredric, A. B., Harvard 1917, A. M. 1918, Ph.D. Columbia (Barnard) 1919, assistant professor, Philosophy 1919
Ginsburg, John E., B. S. St. Anthony’s 1940, D.D.S. Loyola 1945, M.P.H. Milwaukee 1956; assistant assistant professor, Preventive and Community Dentistry
Girard, Clifford P., M. D. Iowa 1949, professor, Obstetrics and Gynecology, 1958
Girard, David H., B. A. Western Reserve 1958, M. D. New York 1962, clinical assistant professor, Internal Medicine, 1962
Girard, Thomas A., B. S. St. Joseph’s 1971, associate professor, Internal Medicine, 1971
Giroux, W. Bradley, A. B., Western Reserve 1937, M.S.W. Nebraska 1944, associate professor, School of Social Work, 1944
Girard, John E., B. S. St. Anthony’s 1940, D.D.S. Loyola 1945, M.P.H. Milwaukee 1956; assistant assistant professor, Preventive and Community Dentistry
Girard, Charles A., B.A. Harvard 1917, A. M. 1918, Ph.D. Columbia (Barnard) 1919, assistant professor, Philosophy 1919
Girard, John E., B. S. St. Anthony’s 1940, D.D.S. Loyola 1945, M.P.H. Milwaukee 1956; assistant assistant professor, Preventive and Community Dentistry
Girard, Charles A., B.A. Harvard 1917, A. M. 1918, Ph.D. Columbia (Barnard) 1919, assistant professor, Philosophy 1919
The following is extracted from the Board of Regents section of the Iowa Administrative Code as of March 4, 1981.

Residence

720—1.4(262) Classification of residents and nonresidents for admission and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, fee, and tuition purposes by the registrar or other officer designated by the board of regents or the chancellor of the university to which the registrant is enrolled. The classification of the registrant is determined solely by the registrar or other officer designated.

b. The classification of resident or nonresident shall be based upon information furnished by the registrant at the time of registration or upon other information available to the registrar or other officer designated.

c. New registrants shall be classified as residents unless proof is submitted to the contrary.

d. The classification of resident or nonresident shall be made on the basis of domicile only.

1.4(2) Facts

a. A person who is admitted into the state as a result of military or civil orders from the federal or state government, or the person is entitled to student status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the person is first enrolled, nonresident tuition will be charged in all cases until the beginning of the next term in which the person is enrolled.

b. A person or the dependent of a person who is an active member of the Iowa National Guard, Iowa Air National Guard, or a dependent of a person who is a member of the Iowa Army National Guard, is entitled to student status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the dependent is first enrolled, nonresident tuition will be charged in all cases until the beginning of the next term in which the student is enrolled.

c. A person who is admitted into the state as a result of military or civil orders from the federal or state government, or the person is entitled to student status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the person is first enrolled, nonresident tuition will be charged in all cases until the beginning of the next term in which the person is enrolled.

1.4(3) Acceptance

The state university shall accept the resident status of any person who the state university grants admission to a state university, unless the resident shall be required to be a resident in order to be admitted to the university.
1.4.(d) Review committee
These regulations shall be administered by the registrar or some designee designated by the registrar. The decision of the registrar or designee 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 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.

Admission Rules
Common to the Three State Universities
720—1.12(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 $50.00 application fee, and have their secondary school provide a transcript of their academic record, including grades and credits, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Assessment Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose native language is not English. Applicants may be required to submit additional information or data to support their applications.

1.5(3) Graduates of approved high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:

(a) be admitted unconditionally,

(b) be admitted conditionally.

(c) be required to enroll for a trial period during a preceding summer session, or

(d) be denied admission.

1.1(2) Graduates of accredited high schools in other states
Graduates of accredited high schools in other states may be held to the same requirements as graduates of Iowa high schools. The options for conditional admission or summer trial enrollment may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of non-approved high schools
Applicants who are graduates of nonapproved high schools will be considered for admission in a manner similar to applicants from approved high schools, but admission is not guaranteed.

1.2(262) Admission of undergraduate students by transfer from other schools
Students desiring admission must meet the requirements in this section and also any special requirements for curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $50.00 application fee, and have each college or university from which they have transferred send an official transcript of record to the admissions office. High school academic records, high school academic records, and transfer records must also be reviewed as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose native language is not English.

1.2(1) Transfer applicants
Transfer applicants with a minimum of twelve semester hours of grades from regionally accredited colleges or universities, who have maintained a C average (2.0) 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 (2.0) based on an A grade being 4 points) for all college work previously attempted, will be denied. Applicants who are on academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:

(a) be admitted unconditionally,

(b) be admitted conditionally,

(c) be required to enroll for a trial period during a preceding summer session, or

(d) be denied admission.
1.2(3) Admission of students with fewer than twelve semester hours college credit
Admission of students with fewer than twelve semester hours of college credit will be based on high school academic and standardized test results in addition to review of the college record.

1.2(3) Transfer applicants under disciplinary suspension
Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reason for the suspension has been received from the college assigning the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities not regionally accredited
Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic records.

720—1.3(262) Transfer credit practices
The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COAPA). The Joint Statement and other Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO) are available for reference by the universities in determining transfer credit. The acceptability and use of transfer credit is subject to limitations in accordance with the educational policies of the respective institution.

1.3(1) Students from regionally accredited colleges and universities
Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Transfer credit from a two-year college will 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-half of the number of credit hours required for that degree.

1.3(2) Students from colleges and universities which have candidate status
Credit earned at colleges and universities which have become candidate for regional accreditation may be accepted in a manner similar to that from regionally accredited colleges and universities if the credit is applicable to the bachelor's degree at the receiving university.

1.3(3) Students from colleges and universities not regionally accredited
When students are admitted from colleges and universities not regionally accredited, they may be admitted provisionally, with the expectation that the student will complete the requirements of the entering institution by satisfactory academic study in residence, or by examination. Each university will specify the amount of the transfer credit and the terms of the validation process or the time of admission. In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the regent committee on educational relations, upon request from the institutions, evaluates the nature and standards of the academic programs, faculty, student records, literary, and laboratory training.

In determining the acceptability of transfer credit from colleges in states other than Iowa which are not regionally accredited, acceptance practices indicated in the current issue of Transfer Credit Practices of Selected Educational Institutions will be used as a guide. For instructions not listed in the publication, guidance is requested from the designated reporting institution of the appropriate state.

1.3(4) Students from foreign colleges and universities
Transfer credit from foreign colleges and universities may be granted after a statement of intent is received and after an evaluation of the content, level, and comparability of the study to courses and programs at the receiving university. Credit may be granted in specific courses but is frequently assigned to general areas of study. Extensive use is made of professions' journals and references which describe the educational systems and programs of individual countries.

Supplemental Specific Rules for 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 transcript and supporting material as required by the director of admissions. Students may not be registered until they have been issued an admission statement by the director of admissions.

720—2.3(262) College of Business Administration
2.3(1) Application for admission
Applicants for admission to the College of Business Administration should submit the application form to the director of admissions. Applicants are urged to apply as early as possible, since the college will extend the admissions deadline once time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.3(2) Requirements for admission
For admission to the College of Business Administration an applicant must have:
   a. Completed specific coursework as prescribed by the faculty of the college.
   b. Attained satisfactory scores on the University’s required admission examinations.
   c. Maintained a satisfactory grade-point average for all courses undertaken at 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 may be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

Completion of the minimum requirements listed above, however, does not assure admission to the College of Business Administration. From time to time, the College Admissions Committee will issue statements calling for their judgment, after which time the application, as prepared to be accepted.

720—2.4(262) College of Dentistry
2.4(1) Application for admission
Address all inquiries regarding admission to the College of Dentistry to the University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Application for admission is made on the University's general application form and the appropriate program of liberal arts and dentistry which would provide for the baccalaureate degree upon the completion of the freshman year in dentistry.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Application for admission is made on the University's general application form and the appropriate program of liberal arts and dentistry which would provide for the baccalaureate degree upon the completion of the freshman year in dentistry.

Each applicant must place on file in the office of the College of Dentistry a certified copy of the completed application form and an official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the College of Dentistry.

The college curriculum must include at least three academic years of accredited work comprising not less than 56 semester hours and including specific required science courses as prescribed by the faculty of the college.
In order to meet minimum scholarship requirements the applicant should attain a cumulative grade-point average of 2.5. Since the quality of courses taken is important, science is basic to success in dentistry, special consideration is given to each student's status 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 examinations of the College of Dentistry.

Applicants who have completed the requirements for admission to dental school for any year prior to seeking admission to the College of Dentistry will be considered by the admissions committee only under exceptional circumstances.

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 to enable the admissions committee to begin its selection in December.

Accepted applicants are requested to make the required deposits within the ten days following notification of their acceptance. This deposit is not refundable but does ensure a place in dental school. The applicant who fails to make the deposit within the time specified forfeits his place in the entering class.

Applicants accepted for admission are required to submit a health examination by a licensed health professional in the state of Iowa, the University student health service within the time specified, and certification of acceptance. All applicants must also complete, through student health service, a chest x-ray film of the chest and a successful vaccination against smallpox prior to registration.

2.4(2) Advanced standing

Applicants for advanced standing standing are handled as individual cases.

2.70—2.25(2) College of Engineering

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced in advance of the opening date of any session.

2.5(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 graduation, transcript 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 obtained 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 prerequisite courses. The University with the approval of the State Board of Regents shall establish and alter admission requirements for admission to the College of Engineering. Among the items which are determined are test score, grade-point average, class rank, and other relevant circumstances. These specific determinations will be published in the University Catalog.

From applicants who do not meet minimum admission requirements, the director of admissions may decline the application or, at his discretion, extend the time for making the request for admission to the fall or winter term of the following year. Upon a showing acceptable to the director of admissions, the admissions committee will not consider applications from students who fail to take the test prior to the June 1 preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not insure admission to the College of Engineering. From the applicants meeting the minimum requirements, the director of admissions will select those applicants who, in his judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.7(1) Admission with advanced standing

A transfer student may be eligible for admission if the student (a) has attended a school of engineering or engineering technology accredited by the American Law Schools; (b) is in good standing at the time of application, as evidenced by a letter from the dean of the school from which transferring; (c) meets the admission requirements for beginning students; and (d) has a substantially equivalent curriculum as the curriculum in law at the University of Iowa.

To be considered for admission, an applicant should have obtained a cumulative grade-point average of at least 2.5 in all college work undertaken. 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.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to the beginning of the fall term.

Each applicant for admission must take the Law School Admissions 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 several 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 insure admission to the College of Law. From the applicants meeting the minimum requirements, the director of admissions will select those applicants who, in his judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee the time to make a timely processing of their applications. Closing dates for receiving applications will be announced in advance of the opening date of any session.

Fulfillment of the specific requirements for admission stated above does not insure admission to the College of Medicine. From the applicants meeting the specific requirements, the admissions committee of the College of Medicine will select those applicants who, in their judgment appear to be best qualified for the study and practice of medicine.

Prospective applicants must:

b. Have received the baccalaureate degree; or
b. Have completed three years of a combined baccalaureate-medicine curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the last year in medicine; or
c. Have completed three years of a baccalaureate program which includes the premedical studies offered through 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 following documents:

The college work as outlined below will suffice to meet the minimal academic requirements for admission to the College of Medicine.

Applicants who have completed the baccalaureate degree four required courses five or more years prior to applying admission to the College of Medicine will be considered by the admissions committee only under exceptional circumstances.

The college curriculum must include at least three years equivalent to ninety-six semester hours including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is required in addition to prerequisite sciences because it offers an opportunity to secure a well-rounded education, which is of special importance to those entering the medical profession. In the selection of applicants, preference will be given to those who give 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 those who have attained a grade-point average of at least 2.5. The grade-point average is based on the University of Iowa's ranking system in which a grade of A is equivalent to four points. Other ranking systems will be evaluated by the office of admissions and the committee on admissions on an individual basis.

Preference will be given to applicants with high scholarship standing who are residents of Iowa, and consideration will also be given to nonresidents of Iowa who are residents of the United States. Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are required to complete this test in May or October of the year preceding that for which they are applying for admission. Students may make arrangements to apply for the examination through the office of admissions or examine through the College of Liberal Arts, 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 and the Student Health Service within two weeks following notification of the acceptance.

All applicants must also complete, through the college of nursing, the required courses in health care and successful vaccination against smallpox prior to registration.

2.0(2) Admission to advanced standing

If the work preparatory to entering a college of medicine would have met entrance requirements of our college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants or high school 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 of the merits of the cases of the candidates, keeping the grade-point average 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 the course in medicine.

No advanced standing will be granted to students from other than approved medical schools. Students must have budgeted student credit upon recommendation of the head of the department in which work is taken in other than medical schools.

2.0(3) Unclassified students

Applicants for admission to the College of Medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such subjects or by action of the faculty upon recommendation of the professor in charge of the course.

2.0—2.9(262) College of Nursing

Applications for admission to the College of Nursing must be submitted to the Director of Admissions. The University of Iowa, Iowa City, Iowa. Applicants for admission to the undergraduate program in nursing must present a minimum of 24 semester hours completed in an accredited college. For admission to the College of Nursing an applicant must have:

1. Completed course work as prescribed by the faculty of the college. The Director of Admissions will provide a list of the course work required.
2. Completed the American College Tests.
3. Performed satisfactorily on all courses undertaken.

Applications from students with many deficiencies in meeting grade-point requirements specified above will be considered by the admissions committee of the college. Such students must be granted conditional or probationary admission. Fulfillment of the minimum requirements listed above, however, does not assure admission to the College of Nursing. From those applicants who meet the minimum requirements, the admissions committee will select the applicants whose final judgment appear to be best qualified.

2.0—2.10(262) College of Pharmacy

2.0(1) General basis for admission

Fulfillment of the specific requirements for admission does not assure admission to the College of Pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who in their judgment appear to be best qualified. Applicants for admission to pharmacy must have graduated from an approved high school or have an equivalent amount of training.

2.0(2) College work

The college work as outlined below will meet the minimal academic requirements for admission to the College of Pharmacy. The minimum should include 32 semester hours of college-level work exclusive of credit in military and air science old physical education. The 32 semester hours may include:

Communication and writing: Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the College of Liberal Arts at the 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 four semester-hour course in bioglogy or zoology.

Military or space science (if available), two to six semester hours.

Students who present minor deficiencies in meeting the entrance requirements may be admitted to the College of Pharmacy upon recommendation of the Dean of admissions and the College of Pharmacy.

2.0(3) Scholarship and academic calendar

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 University of Iowa's ranking system in which a grade of A is equivalent to four points. Applications for admission and the requirements for admission to College of Pharmacy should be filed before March 1 for the class to enter pharmacy in the following year.

2.0(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.0(5) Current requirements

Applicants who have completed work in an approved college of pharmacy in the United States, Canada, or American Council on Pharmaceutical Education shall have their college academic average be acceptable, be admitted and granted advanced standing in the degree of bachelor of science in pharmacy.
720—2.11(262) College of Liberal Arts

Applicants for admission to the College of Liberal Arts must meet the rules that are common to the three state institutions in Iowa as listed in 1.1(262), 1.2(262) and 1.3(262).

720—2.12(262) College of Education

Students at the University desiring professional 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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